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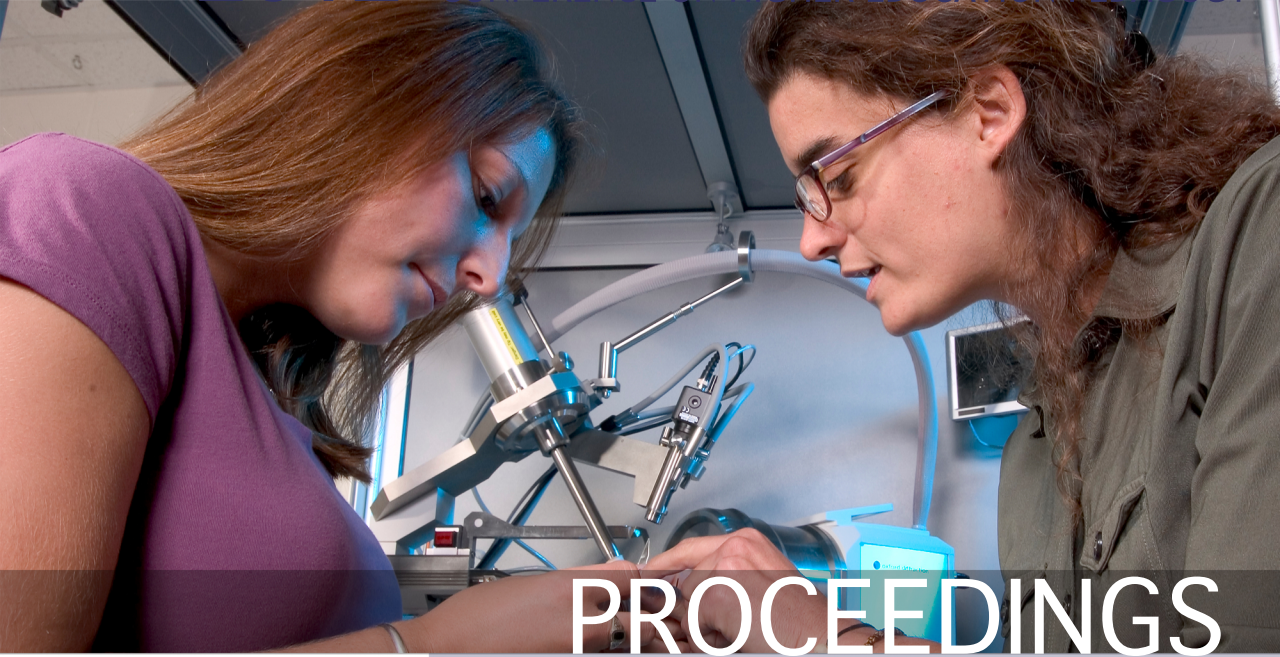
CONFERENCE ON HIGHER EDUCATION PEDAGOGY

PROCEEDINGS

Hosted by the Center for Instructional Development and Educational Research

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Conference on

Higher Education Pedagogy

February 8-10, 2012
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Letter From the Conference Committee

The fourth annual *Conference on Higher Education Pedagogy* is focused on higher education teaching excellence and the scholarship of teaching and learning. The conference provides a forum for faculty members and graduate students to showcase their instructional research and model their pedagogical practice with the goals of demonstrating the quality of educational research and practice that is being conducted on campuses; providing a mechanism for faculty members to network with other like-minded faculty regarding pedagogy; and, expanding faculty members' understanding of and motivation for learner-centered teaching.

This conference would not be possible without the moral and financial support of our Conference Sponsors, General Sponsors, and Corporate Sponsors who have provided guidance and encouragement when needed, as well as funding. The conference organizers are also grateful for the support provided by the Vice President and Dean of Undergraduate Education at Virginia Tech, Dr. Daniel A. Wubah, who has supported this pedagogical project from its inception.

In this time of economic challenge, it is essential that we maintain the highest standards for higher education and continue to increase the effectiveness of instruction and the depth of student learning. We are pleased to join with our colleagues to foster educational excellence through the Conference on Higher Education Pedagogy.

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Opening Keynote Address

Todd Zakrajsek

Executive Director, Center for Faculty Excellence
The University of North Carolina at Chapel Hill

**Teaching for Learning:
An Evidence-Based Examination of Key Pedagogical Concepts**

Todd Zakrajsek's address will highlight important developments in pedagogical research and suggest approaches for staying current with college teaching and learning literature. He is the Executive Director of the Center for Faculty Excellence at University of North Carolina at Chapel Hill. He was previously the Inaugural Director of the Faculty Center for Innovative Teaching at Central Michigan University and the founding Director of the Center for Teaching and Learning at Southern Oregon University, where he also taught in the psychology department as a tenured associate professor. Todd also directs two Lilly Conferences on Teaching and Learning, one in Traverse City, Michigan and the other in Bethesda, Maryland. Dr. Zakrajsek received his Ph.D. in Industrial/Organizational Psychology from Ohio University, and has published and presented widely on the topic of student learning, including workshops and conference keynote addresses in 37 states and 4 countries.

Closing Keynote Address

Kobina Yankson

Director, Directorate of Academic Planning and Quality Assurance
University of Cape Coast, Ghana

**Instructional Excellence and Scholarship:
Essentials for Effective Teaching in Higher Education**

One of the cardinal goals of higher education is to produce functional middle and high level workforce that meet the demands of the job market for socio-economic growth. The training instruction for producing such graduates need to be excellent, but of equal importance is the quality of the skills and knowledge imparted to the learners. This presentation will examine the attributes of excellent instruction and justify the need for it to be supported with scholarship to achieve effective teaching and learning and thereby produce functional graduates. Aspects of the presentation will include the classical mode of instruction in higher education institutions, the need for change, attributes of excellent instruction, scholarship ⁻ its relevance for instruction, and a call on higher education institutions to put in place mechanisms that ensure continual growth in pedagogy and scholarship for their faculty.

Professor Yankson, of the University of Cape Coast in Ghana, is a Professor of Zoology; a Commonwealth Fellow; Darwin Initiative Fellow; Fulbright Scholar; Fellow of The Institute of Biology (Gh.) and past President of West Africa Science Association and Ghana Science Association. He was, for eight years, the Editor-In-Chief of Everyday Science for Schools Magazine; was cited in "Who is Who in Science and Technology Education in Africa" in 1997; Selected "Man of the Year" 1998 by the American Biographical Institute and inducted into the "Leading Scientists of the World" in 2008 by the International Biographical Centre, Cambridge in recognition of his accomplishments in Molluscan Shellfish Research in Particular, and Science in general. He is a former Dean of the Faculty of Science, former Pro Vice-Chancellor and currently Director of Academic Planning and Quality Assurance at University of Cape Coast (UCC).

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A Case Study of a Native American Tribal Special Education Licensure Program: The Naadamaadiwin Tribe

Trudie Hughes, *Eduacation, University of Minnesota - Duluth*
Susan O'Connor & Donna Patterson, *Education, Augsburg College*

Abstract: The Naadamaadiwin Tribal Special Education Licensure Program is a state approved and state funded licensure program with a goal to recruit teachers who are specifically trained to teach Native American students with disabilities. The program is a graduate level licensure program delivered in a hybrid format with face-to-face and online sessions. The program entered its first cohort of 15 students in fall, 2008 with these students graduating in spring, 2010.

The goal of this qualitative study was to better understand the experience of the students in the program, to identify what has worked well for them and what has been challenging, and to assess a perceived level of preparedness to work with both Native American students and students in special education. A review of program evaluation findings, individual interviews, a follow-up survey and focus group, and analysis of the online postings from the two-year period of the first cohort classes was conducted. Among other conclusions, it was found relationships with peers in the cohort were essential to academic integration; faculty relationships were primarily supportive in nature and Native students especially expressed that the design and content of the program validated what they have known and experienced throughout their lives. Students feel well prepared to work with Native students and with other students from diverse backgrounds; cultural understanding seems to be generalized across other populations.

Literature Review

The Minnesota Department of Education, reports there are 823,826 K-12 students in the public education. There are roughly 18,676 American Indian students who attend public school, representing approximately 2% of the total student population. Of those students, 3,982 or 21% of American Indian students, receive special education services in some form. To put these numbers in perspective, 19% of 79,823 African-American students, 19% of 55,147 Latino students, 14% of 617,852 Caucasian students, 9% of 52,328 Asian students receive special education services. As we can see, American Indian students represent the smallest racial population in the state of Minnesota, yet represent the largest percentage per capita of students who receive special education services (MDE, 2010). As the data suggests, a large portion of American Indian students in Minnesota receive special education services and some researchers believe American Indian students are overrepresented in special education (Bergstrom, Miller Cleary & Peacock, 2003). Overrepresentation occurs when "the percentage of students from [a particular] group in [special education] programs is disproportionally greater than their percentage in the school population as a whole" (Urbanschools.org, 2001). Currently in the state of Minnesota, American Indian students are 2% of the student population and 21% of American Indian students are eligible for special education services. American Indian students are overrepresented in special education programs.

Since its inception in 1975 with the passing of the "Education for All Handicapped Children Act," Special Education has been an educational system designed to meet the unique needs of students who possess individual learning, physical and mental disabilities. However, since that time and up to the present, American Indian students have consistently been referred for Special Education services at a higher rate than any other cultural group. Some believe that the American Indian student population is disproportionately represented in Special Education because of a general lack of cultural understanding, ineffective instructional methods and limited access to resources Tepper & Tepper, 2004). Overrepresentation of minority students in special education has been an ongoing concern for over 3 decades. Minnesota has been a leader in the development of guidelines for appropriate evaluation of minority students. The guidelines *A Vision for a Better Education: Reducing Bias in Special Education Assessment for American Indian and African American Students* were published in 1997 and continue to be used today. This publication has been lauded nationally as one of the most comprehensive manuals of its type, incorporating cultural information and extensive information on pre-referral procedures as well as recommendations on special education assessment and eligibility determination.

The Naadamaadiwin Tribal Special Education Licensure Program is a state approved and funded licensing program with a goal to recruit teachers who are specifically trained to teach Native American students with disabilities. To address this need for increased numbers of special education personnel to work with American Indian students with

disabilities, University of Minnesota-Duluth and Augsburg College have developed the Naadamaadiwin Tribal Special Education Licensure Program.The literature pertinent to the needs of American Indian students with disabilities is dated and limited. The data that does exist shows that Native students are disproportionally represented in k-12 special education programs. Additionally, there is a great need for adequately trained special education teachers to provide appropriate and culturally specific services to these students.

Methods and Results

This study used a qualitative methodology to include a review of program evaluation findings, individual interviews, a follow-up survey and focus group, and analysis of the online postings from the two-year period of the first cohort classes. These methods invited students to share their views and experiences, as well as provide an opportunity to explore topics that emerge, seeking patterns and relationships of meanings inherent in their experience. The research design explored individual persistence factors, the level of cultural meaningfulness of the Naadamaadiwin experience and its' relevancy to participants future work with students.

The first phase of this study consisted of individual interviews with 13 participants. The interviews took place during the summer and fall of 2010, and were conducted in a convenient location near the participants' hometown.

 The second phase of this study was an analysis of online postings from select periods (beginning semester, middle semester, final semester) from the eight classes in the Naadamaadiwin program. The purpose of this analysis was to identify patterns over time in both breadth and depth of interactions with the course material, with faculty and with each other.

The final phase of this study was a follow-up survey and focus group that took place approximately nine months after the first cohort graduated from the program. The primary focus of this follow-up included teacher retention in special education, perceptions of preparedness to work in special education as well as with Natïve American youth and families, and intent to or completion of the Master's degree component of the program. The follow-up focus group was held at a mutually convenient location for all participants.

Results indicate the relationships with peers in the cohort were essential to academic integration; faculty relationships were primarily supportive in nature. Social connections and integration between cohort members and faculty were primarily functional in nature, especially during challenging periods. Native students especially, expressed that the design and content of the program validated what they have known and experienced throughout their lives. The most profound impact seems to be in the non-Native students who grew up in urban areas with a large Native population. Students feel well prepared to work with Native students and with other students from diverse backgrounds; cultural understanding seems to be generalized across other populations.

References

Bergstrom, A., Miller Cleary, L., & Peacock, T. D. (2003). *The Seventh Generation.* ERIC Clearinghouse on Rural Education and Small Schools, Charleston, WV.

Minnesota Education Statistics Summary. (2010, December 15). *Data.* Retrieved September 19, 2011 from http://eduation.state. Mn.us/MDE/Data/index.html

On the nexus of race, disability, and overrepresentation: What do we know? Where do we go? (2001, December 1). *Brief discussion of critical issues in urban education.* Retrieved September 20, 2011, from www.urbanschools.org/pdf/race.pdf

Tepper, N. & Tepper, B. A. (2004). Linking special education with multicultural education for Native American children with special needs. *Rural Special Education Quarterly,* 4.

A Decade of War: Institutional and Civic Responsibilities to "Warrior Writers" in the Writing Classroom

D. Alexis Hart & Roger Thompson, *English and Fine Arts/Institute Writing Program, Virginia Military Institute*

Abstract: Nearly 500,000 military veterans entered U.S. colleges and universities in 2009. With the current withdrawal of troops in Iraq and the continued financial assistance of the Post-9/11 GI Bill, this influx of veteran students will only increase over the coming years. As writing courses typically are required of all students at colleges and universities and because these classes are often smaller in size and carry an expectation that students engage actively with classmates and conference one-on-one with professors, writing programs and writing instructors need to examine carefully how an increase in "warrior writers" alters their classrooms and must take into account the changing demographics of student writers when making decisions about the types of writing they assign and the kinds of writing support they offer to their students.

One of the challenges faced by military undergraduates is getting "their professors [to] appreciate their life circumstances, including both health and academic challenges" (DiRamiro, Ackerman, and Mitchell 95). Indeed, research based on interviews with military undergraduates suggests that "[p]rofessional development opportunities for college instructors are needed to help them better understand the needs of this emerging student group" (DiRamiro, Ackerman, and Mitchell 95). This need to raise faculty awareness of military students has not gone unnoticed by the Conference on College Composition and Communication (CCCC), the world's largest professional organization for researching and teaching college writing. At the 2010 CCCC's conference, Marilyn Valentino used her Chair's Address as an opportunity to acknowledge the rapidly growing demographic of Iraq and Afghanistan war veterans entering college writing classrooms. She noted that nearly 500,000 veterans entered college during the previous year and that many of those new students brought with them the wounds of war, both physical and emotional. Valentino's comments ended with the assertion that "we do have an ethical obligation to react responsibly" to veterans in the classroom. As Valentino's remarks make clear, writing program administrators need to consider carefully how an influx of "warrior writers" alters their composition classrooms and encourage instructors to reflect upon the changing demographics of student writers when making decisions about the types of writing they assign and the kinds of writing support they offer to their students.[1]

The purpose of this presentation, then, is to open a conversation with other college educators and to share the results of an initial study that aims to provide guidance to writing program administrators and to teachers in writing classrooms that are increasingly likely to include "warrior writers" and their families. Since most colleges and universities have no explicit policy on veterans in their writing classes, to date, much of the support for veteran writers has come from outside the traditional classroom. In this presentation, we will consider whether writing instructors should familiarize themselves with both the unique challenges and the particular strengths veterans of the current wars may bring to the writing classroom, especially classrooms in which reflective or expressivist modes of writing are valued. We will report on whether writing instructors are being made aware of research on soldiers returning to college, research that suggests veterans' classroom experiences are different than those of many student populations. On the one hand, significant research points to the potential level of trauma contemporary veterans—whose combat survival rate is higher than in past conflicts and who are experiencing PTSD and traumatic brain injuries in great numbers (Rand)—may be bringing to the classroom. On the other hand, veterans' experiences often result in more mature students with a different set of governing values and broader perspectives than the typical eighteen- or nineteen-year-old first-year composition student. We recognize that veterans' experiences produce multi-faceted responses to education and therefore any totalizing narrative of warrior writers will likely fall short of providing useful guidance. Instead, we hope to suggest that the range of veteran experiences requires the thoughtful consideration by writing instructors about the needs of individual students. While research suggests that veterans often "want and need the opportunity to continue in camaraderie with other veterans" (Teachman), perhaps, as Galen Leonhardy suggests, the "primary objective" of writing teachers "should be allowing vets opportunities to explore their military experiences and to facilitate that process if and when veterans so choose" (343). One objective of this presentation, then, will be to provide college instructors with a range of suggestions about how to accomplish that objective and how to fulfill their ethical responsibility to engage with and respond to warrior writers.[2]

References

DiRamio, D., Ackerman, R., & Mitchell, R. L. (2008). From combat to campus: Voices of student-veterans. *NASPA Journal*, 45(1), 73-102.

Leonhardy, G. (2009). Transformation: Working with veterans in the composition classroom. *Teaching English in the Two-Year College*, 339-352.

Rand Center for Military Health Policy Research. (2008). Invisible wounds: Mental Health and Cognitive Care Needs of America's Returning Veterans.

Sherman, N. (2010). The untold stories of war. *The Chronicle Review* (April 16), B7-B9.

Teachman, J. (2007). Military service and educational attainment in the all-volunteer era. *Sociology of Education* 80(4), 359-374.

Valentino, M. J. (2010). CCCC's Chair's Address: Rethinking the 4th C: Call to Action.

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[1] William Astore, a Professor of History and retired Air Force Lieutenant Colonel, recently wrote an Op-Ed describing what he calls the military's "disturbing transition" from an ethos of "citizen-soldier" to an ethos of "warrior." The idea of the "warrior writer" has already become commonplace among some academics studying the intersection of literature and war, and in 2008, the group Iraq Veterans Against the War published a volume of collected writings that seize upon the idea of the "warrior writer": *Warrior Writers: Remaking Sense*.

[2] Nancy Sherman, professor of philosophy, has examined the effects of war on soldiers and suggests that even without veterans in a classroom, teachers working during a time of war and its aftermath bear special ethical responsibilities: "We in the teaching profession, on campuses where the military/civilian gap still yawns far too wide, have an obligation to help our students understand what soldiers go through and what our responsibility as citizens is to those whom we send to war. We owe soldiers not just public respect, but private respect. One way to give that respect is by understanding, empathically, the moral weight of war" (B9).

An Evaluation of Cross-Program Collaboration Among
Graduate Students in Educational Leadership in a Virtual Learning Environment

Barbara B. Howard, Paul Wallace, & Terry McClannon, *Department of Educational Leadership, Reich College of Education, Appalachian State University*

Abstract: Educational leaders in K-12 schools encounter increasing challenges. To effectively meet such challenges requires the ability to collaborate with multiple leadership roles within the school community. Our department prepares school administrators, media specialists, and technology facilitators to work in k-12 settings. To better prepare students to assume these critical roles, we engage in cross-program collaboration among students within the different program areas. In a virtual world environment students define issues, share resources, and construct solutions beyond the restrictions of physical location and programs of study. Over the course of one summer semester, our students representing two of these programs in educational leadership met online, shared their expertise, and developed proposals for the use of iPads within simulated school settings, with each student playing the role of principal, assistant principal, technology facilitator or teacher as members of a fictional school leadership team. The outcomes of participation based on student perception were examined through electronic survey, student postings on blogs throughout the project, and student reflections at the end of the project. Results indicate positive perceptions of student leadership development.

Background and Methodology

The Department of Leadership and Educational Studies (LES) of the Reich College of Education, Appalachian State University prepares educational leaders in all educational settings – from prek-12 to higher education. These programs include degrees and certification in k-12 School Administration, Higher Education, Instructional Technology, Library Science, and a doctorate degree in Educational Leadership. This project focused on the collaboration of students in two of these programs: school administration and instructional technology. The intent of the project was to engage our students in transformative learning experiences (Mezirow, 1997; Taylor, 2008) designed to offer a simulation of the type of real-world work they might encounter when assuming the roles for which we are preparing them (Cranton, 2006). Most graduate programs steep their students in theory and practice

related specifically to their field (Lin & Cranton, 2005; Malcolm & Zukas, 2001). In our department, we made the conscious decision to augment our traditional programs of study with integrated attempts to break these silos of learning in an effort to challenge the ethnocentrism often found in graduate programs (Taylor, 2008). This led to the development of simulations specifically designed to provide our students with opportunities to develop authentic empathy with their counterparts in educational leadership in preparation for the challenges they will face as school leaders. The project described in this study represents the fourth attempt at cross-program collaboration using a virtual environment (see Figure 1). Previous attempts informed the structure and organization of this project.

Figure 1. Teleplace Virtual Environment

In our department, most of our courses are taught in off-campus cohorts on satellite campuses within a 100-mile radius of our campus. We also offer online cohorts, which include students from across the state. While this is a convenient and effective way to serve our graduate students, most of whom are working educators in k-12 settings, it further serves to increase isolation among cohorts as well as programs. To bring students from various cohorts and programs together in face-to-face meetings was not feasible given the geographical distances. Therefore, we incorporated a variety of technology tools that increased opportunities for collaboration and knowledge of technology among our students.

During a 10-week summer term in 2011, we assigned 30 School Administration students and 48 Instructional Technology students into 15 "school leadership teams" consisting of at least 3 other students not in their cohort. Within each team, School Administration students were assigned the roles of principal, assistant principal or teacher.

Instructional Technology students were assigned the roles of technology facilitator or teacher. The assignment of teams and roles allowed us a slight control over the makeup of the groups and saved time during the term. We provided written instructions detailing the expectations of the project to all students. This minimized confusion across cohorts and program areas. We charged each school team with the challenge of designing a proposal to present to the district superintendent to convince the Central Office Leadership Team that the school deserved to receive 200 iPads for distribution to students and teachers. Each team had to make a credible case addressing issues of professional development; infrastructure to support the use of iPads; alignment with curriculum; attention to best practices in instruction and assessment; and other necessary resources to support the project. Team members were allowed to use any forum or social networking tool, Google Docs, or message board agreeable to the entire team. The final projects were posted in a forum on Teleplace, the department's virtual world.

We engaged in a utilization-focused evaluation of this project to determine its worth in terms of student perception of leadership roles and relevancy to their area of study (Patton, 2008). Several sources of data allow us to examine student perceptions of the impact of this type of project on leadership development. Electronic surveys were administered after the conclusion of the semester after posting of course grades. Students were required to submit reflection papers at the conclusion of the project for credit in the course. Students were also required to post weekly blogs concerning their group dynamics, and the challenges and successes encountered throughout that week as well as comments concerning the project itself. This allowed an ongoing log of the process.

Data Analysis and Results

Seventy-eight students participated in this project. The response rate to the survey administered after the conclusion of the semester was 65% (n=51). Overall, student responses indicated positive reactions to items concerning the relevancy, realism, practicality, and impact on leadership skills (see Figure 2.)
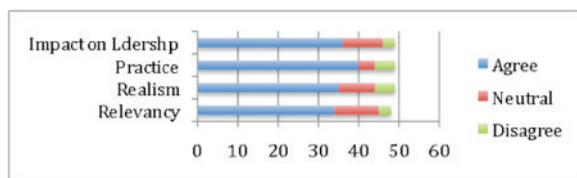
Figure 2. Sample Items of Electronic Survey

The open-ended responses on the survey, data from reflection papers, and entries in blogs were coded and then analyzed according to themes that emerged as a result of coding. The results of these analyses indicate strong positive perceptions concerning participation in this type of project in regards to leadership preparation.

Discussion and Conclusion

Graduate programs that prepare leaders for k-12 schools must provide a greater degree of transformative learning experiences that challenge existing theories of pedagogy. Project-based learning involving interdisciplinary teams requires planning and collaboration among faculty members as well as students. However, overcoming these challenges offers greater opportunity for the development of effective school leaders in all roles. Our students support the value of pursuing such projects. Future studies should investigate longitudinal data and impact in schools in which our students will eventually serve in leadership roles.

References

Cranton, P. (2006). Fostering authentic relationships in the transformative classroom. *New Directions for Adult & Continuing Education* (109), 5-13.

Malcolm, J., & Zukas, M. (2001). Bridging pedagogic gaps: conceptual discontinuities in higher education. *Teaching in Higher Education*, 6(1), 33-42.

Mezirow, J. (1997). Transformative learning: Theory to practice. *New Directions for Adult & Continuing Education* (74), 5.

Patton, M. Q. (2008). *Utilization-Focused Evaluation* (4th ed.): Thousand Oaks, CA: Sage.

Taylor, E. W. (2008). Transformative learning theory. *New Directions for Adult & Continuing Education* (119), 5-15.

Better Predictors of Student Motivation: Pedagogical vs. Socio-Demographical Variables

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Abstract: Student motivation is linked to academic achievement, and to other positive learning outcomes. Among a sample of 215 college students in a French speaking engineering school, this research examines how instructor and course characteristics as well as socio-demographic variables contribute to student motivation. Using multiple linear regression analysis, we found that instructor and context-related variables are significantly related to student motivational components. Moreover, they tend to overhaul most socio-demographic variables when considered concurrently, hence the importance of carefully designing learning activities.

There is little doubt in most instructors' mind that student motivation is an important factor affecting the performance of students in their courses. Theoretical models explaining motivation have integrated myriad of variables, such as precollege and socio-demographic characteristics (gender, age, family values, ability), social and cognitive characteristics (student perceptions of self and others, goals), as well as contextual characteristics (class size, learning activities). Despite the multifactorial nature of the concept of motivation, few instructors have a clear idea as to what they can do to nurture the motivation to learn in the classroom.

Literature Review

A vast body of research has highlighted the close link between motivation, academic achievement and persistence in higher education (Schunk & Zimmerman, 2009). According to the socio-cognitive paradigm, cognitions and students' perceptions of their abilities, their school work and the learning environment act as mediators of their behavior and explain much of the achievement-related behaviors, such as effort (Bandura, 1997). The Expectancy-Value theory is used as a conceptual framework in a number of studies on student motivation. An important aspect of the Expectancy-Value model is the consideration of how course-specific factors are thought to influence students' motivation. Such factors include the perceived nature of the tasks used, the way in which students are recognized, and the perceived teachers' instructional practices.

Studies that examined students' perception of the learning context show that college and university instructors can influence the level of motivation to learn (McKeachie & Svinicki, 2006). The same is true for studies that looked at students' perceptions of instructor characteristics, particularly their attitude towards students (Kozanitis, Desbiens, & Chouinard, 2007). In the present study, a broad adaptation of a model proposed Pintrich & Schunk (2002) was used to explore the relation between motivation to learn, students' socio-demographic characteristics, their perception of tasks and learning activities, and their perception of instructor's openness and reaction towards students. Its goal is to examine if instructor and course characteristics contribute to student motivation above and beyond socio-demographic variables, and addresses the underling practical problem on how to motivate students.

Methodology

The study was conducted at a French speaking engineering school in Quebec, Canada. A total of 215 students (79% male, with a mean age of 22.7, SD=4.1) completed a condensed version of the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al.1993), the Student Engagement Survey (Ahlfeldt et al. 2005), and the Perceived Teacher Support of Questioning (PTSQ; Karbenick & Sharma, 1994), during the ninth week of the fall 2010 semester. Multiple linear regression analysis was used to predict the set of motivational components for this study. Independent variables were introduced with the enter-remove method, in the following order: socio-demographic variables, instructor attitude and behavior, student perception of tasks and learning activities.

Results

Table 1 shows the adjusted fraction of variance (R^2) explained for all six components of student motivation. Table 2 shows the standardized beta coefficients and t test values for the significant independent variables only.

Table 1. Fraction of variance explained for motivational components

Model	Mastery Goal R^2	Mastery Goal F	Performance R^2	Performance F	Avoidance R^2	Avoidance F	Task Value R^2	Task Value F	Control Beliefs R^2	Control Beliefs F	Self-efficacy R^2	Self-efficacy F
1	0.10	5.37**	0.02	1.91	0.06	3.84**	0.14	7.50**	0.03	1.35	0.06	3.71*
2	0.26	9.54**	0.05	2.38*	0.21	7.66**	0.25	9.03**	0.20	7.14**	0.23	8.19**
3	0.25	5.23**	0.06	1.76	0.23	4.68**	0.29	6.13**	0.02	3.74**	0.25	5.08**
4	0.28	4.17**	0.09	1.82*	0.23	3.51**	0.30	4.48**	0.05	3.10**	0.23	3.44**
5	0.27	3.20**	0.11	1.74*	0.25	2.92**	0.35	4.16**	0.02	2.31**	0.26	3.09**

$* p < .05$ $** p < .01$

Table 2. Standardized coefficients and t test values for significant independent variables

Variables	Mastery Goal Beta	Mastery Goal t	Performance Beta	Performance t	Avoidance Beta	Avoidance t	Task Value Beta	Task Value t	Control Beliefs Beta	Control Beliefs t	Self-efficacy Beta	Self-efficacy t
Age							0.16	2.02*				
GPA	0.23	2.44*										
Reaction	0.46	3.75**	0.41	3.04**			0.35	3.03**	0.27	2.26*	0.37	3.05**
Openness					-0.56	-4.62**						
Questioning			0.21	2.12*							0.21	2.29*
Autonomous	0.27	2.19*					0.25	2.14*			0.35	2.84
Critical											-0.27	-2.05*
Synthesize	0.23	2.03*										
Evaluate							0.20	1.96*				
Job related							0.29	2.63*				
Adapt			-0.27	-1.98*								

$* p < .05$ $** p < .01$

Discussion

Results show that instructor and context-related variables are significantly related to student motivational components. What's more, they tend to overhaul most socio-demographic variables when considered concurrently. For instance, instructor reaction to student questioning is positively related to all components except for Avoidance goals, which is, not surprisingly, inversely related to instructor openness. An interesting finding is that students tend to have lower performance goals when they are asked to participate in learning activities that require adapting to new or unforeseen situations, with GPA unrelated. Although older students show higher task value, results indicate that various task related variables can also positively influence task value. Namely autonomous learning, evaluating information, and job related knowledge. On the other hand, critical thinking activities seem to be negatively related to self-efficacy beliefs. One possible explanation to this surprising result might ensue by the fact that undergraduates are rarely exposed to activities of this nature, and therefore feel insufficiently prepared to do well. All in all, this study bears evidence that instructors' classroom attitude and pedagogical decisions can have a direct influence on student motivation. Carefully designing learning activities can promote effective motivational components.

References

Bandura, A. (1997). Attention and retrieval from long-term memory. *Journal of Experimental Psychology: General, 13*, 518-540.

McKeachie, W. J., & Svinicki, M. (2006). *McKeachie's teaching tips* (12ᵉ éd.). New York: Houghton Mifflin.

Pintrich, P., & Schunk, D. (2002). *Motivation in education: Theory, research, and applications* (2nd ed.), Upper Saddle River, NJ: Merrill.

Pintrich, P. R., & Zusho, A. (2002). The development of academic self-regulation: The role of cognitive and motivational factors. In A. Wigfield & J.S. Eccles (Eds.), *Development of achievement motivation* (pp.249-284). San Diego: Academic Press.

Schunk, D., & Zimmerman, B. (2009). Motivation and self-regulated learning: Theory, research, and applications. *Journal of Higher Education, 80* (4), 476-479.

Building Feminist Pedagogy in the Online Classroom: Climate, Challenges, and Solutions

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Abstract: Creating a course rich in feminist pedagogy has been mastered by many feminist scholars and educators. The transition to adapting feminist pedagogy to an online environment has a variety of challenges—the growing need for universities to adapt to changes in course facilitation based on academic and financial needs, the negative climate associated with virtual education by many feminist educators, and the lack of tools and techniques that might assist in adapting a course to an online structure based on feminist pedagogical ideas. I conducted a qualitative analysis based on survey responses from 39 university educators nationally, across a variety of disciplines. All respondents identified themselves as teaching from feminist pedagogical perspective. Results indicate that the climate that currently exists for adapting a course online through a feminist pedagogical lens is resistant and negative overall, particularly among more experienced faculty. Amid the negative climate is the discussion that the reality of the future of higher education includes an increasing demand for online courses and that there needs to be continued discussion related to adapting courses to an online environment while maintaining a feminist pedagogical lens. These competing ideas are discussed, as well as, tools and techniques that respondents have incorporated into their online courses that have successfully utilized feminist pedagogy.

Background

Feminist educators and researchers have successfully created classrooms rich in feminist pedagogy. Over the last couple decades there has been an increased growth in virtual education within higher education. This demand has challenged feminist educators, across discipline, to find ways to successful incorporate feminist pedagogy into online classrooms (Chick & Hassel, 2009; Whitehouse, 2002). Previous research on feminist pedagogy in the face-to-face environment identifies a variety of standards associated with this style of teaching (Allen, 1988). Some feminist educators might find it difficult to conceptualize some of these standards being implemented into the online classroom. Allen (1988) defines pedagogy as directly looking as "how the courses are taught—the context of the learning environment" (p. 30). Some standards of feminist pedagogy include: respecting and responding to issues of diversity (Allen, 1988); creating a collaborative atmosphere between instructor and student (Meyers, 2008); awareness of issues of power in the instructor/student relationship (Weiler, 1991); the use of self and personal experiences in the classroom environment (Allen, 1988; Meyers, 2008); and reflexivity of the students and their experiences (Allen, 1988). Recent research on online course facilitation addresses pedagogical ideas from a more generalized perspective (Meyers, 2008). A couple feminist researchers and scholars have begun the discussion on the needs and possibilities of building in feminist pedagogy into online classrooms (Chick & Hassel, 2009; Cook, 2009; Whitehouse, 2002). To bridge the gap in research, this study was designed to take a closer look at: (a) The current climate among feminist faculty and educators towards the continued growth of online classrooms; (b) How feminist faculty and educators, across disciplines, have successfully adapted courses online using feminist pedagogical ideas and structure; and (c) What challenges and successes have occurred as a result of utilizing feminist pedagogy in an online environment?

Methodology

Faculty and graduate teaching instructors were recruited from universities nationally, across disciplines, to participate in an online survey. Thirty-nine respondents who self-identified as teaching from a feminist pedagogy responded to the survey. The main themes of survey questions included: (a) Defining feminist pedagogy in higher education; (b) Indentifying teaching experience participants have had related to online courses; (c) Understanding climate issues among feminist faculty and educators, and (d) Building and constructing courses in an online environment the integrate feminist pedagogy. Most of the questions were open-ended to give respondents an opportunity to share thoughts and experiences. Surveys were anonymous.

Data Analysis

The data were analyzed using grounded theory techniques established by Glaser and Strauss (1967). This qualitative design assisted in defining coding techniques and developing a way to gain perspective on the intersection of the climate among feminist faculty and educators, the challenges associated with building a course online while maintaining feminist pedagogy, and what tools and techniques have been found successful related to building feminist pedagogy online.

Respondents identify some important factors of feminist pedagogy. Several themes emerged from the survey data related to identifying the most important aspects of feminist pedagogy. Some participants discussed power and how to address power. One participant stated that educators should incorporate "a non-hierarchical perspective that takes into consideration many truths rather than one." Other themes included: (a) building in a "collaborative environment"; (b) creating a space to hear the "diverse voices" of all students in the classroom; (c) making space for "self-discovery"; (d) challenge through the introduction of feminist ideas and content; (e) build in critical thinking; and (f) transparency of instructor. Participants had mixed reactions related to the possibilities of incorporating these ideas online. Some participants shared the necessity of locating tools and support networks to incorporate feminist pedagogical ideas into online classrooms. Other participants voiced negative reactions or indicated things might be left out in the transfer of feminist pedagogical ideas to an online class. In addition, some participants gave examples of how they have successfully incorporated some aspects of feminist pedagogy into their online course. Participants were asked to discuss the climate among their feminist colleagues related to adapting a course online. Participants indicated a negative climate exists among feminist faculty and educators (n = 21, out of 28 that responded to this question.) Some respondents (n = 7) perceived extremely negative climate issues, one participant stated her feminist colleagues were "resistant, condescending, and skeptical" of online instruction.

Some participants shared positive outcomes related to elements of their personal experiences building courses online while incorporating feminist pedagogy. Discussion boards were one method in the online environment that allowed each student a voice and more anonymous way to build in self expression and learning. Journaling was another method that successfully utilized some self-reflection that many participants valued as part of the feminist classroom context. Power dynamics were effectively addressed in the online class by some participants. Finally, some current events and critical thinking elements had their place in the online courses of some participants.

Discussion and Conclusion

Closing the gap between climate and the reality of the increasing demand for online instruction, this research identifies several ways feminist pedagogy has been successfully adapted to an online environment and how feminist faculty have bridged the challenge. A discussion of the challenges related to what has been left out of the virtual classroom with regard to feminist pedagogy is presented. Finally, some tools and techniques that some participants have found helpful are also explored.

References

Allen, K. R. (1988). Integrating a feminist perspective into family studies courses. *Family Relations, 37*, 29-35.
Chick, N., & Hassel, H. (2009). "Don't hate me because I'm virtual": Feminist pedagogy in the online classroom. *Feminist Teacher, 19*, 195-215.
Cook, S. G. (2009). Online courses need feminist teaching style. *Women in Higher Education, 18*, 22.
Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory*. Chicago, IL: Aldine.
Meyers, S. A. (2008). Using transformative pedagogy when teaching online. *College Teaching, 56*, 219-224.
Turpin, C. A. (2007). Feminist praxis, online teaching, and the urban campus. *Feminist Teacher, 18*, 9-27.
Weiler, K. (1991). Freire and a feminist pedagogy of difference. *Harvard Educational Review, 61*, 449-474.
Whitehouse, P. (2002). Women's studies online: An oxymoron? *Women's Studies Quarterly, 30*, 209-226.

Classroom Experiments:
Playing Games Improve Student Achievement in an Intermediate Level "Hurdle" Course

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Abstract: Prior research explored whether classroom experiments help instructors achieve classroom goals in introductory classes. This work shows these activities improve student learning outcomes in "Intermediate Microeconomics" – typically the course with the lowest success rate in the major.

Background and Literature Review

Classroom experiments are activities where students work in groups on guided inquiry questions. Materials provide students with the means of collecting data through interaction with laboratory materials, data simulation tools or decision-making games. Well-designed experiments are an example of POGIL (Process Oriented Guided Inquiry Learning), a research based learning active learning strategy. While traditional "hard" sciences have traditionally incorporated lab experiments as a way of promoting active learning, economics has only recently adopted experiments for research, still more recently for teaching.

Emerson and Taylor (2004) and Dickie (2004) find that Principles of Economics students who participate in classroom experiments experience significantly improved learning outcomes as measured by the Test of Understanding in College Economics (TUCE). Ball, Eckel and Rojas (2006) find (after controlling for achievement and demographic characteristics) that students in large classes with classroom experiments earn final exam grades that average over 7 points more on final exams compared with a control group. In addition, they find that learning gains were largest among younger students as well as women, a group underrepresented in the economics major and beyond. This research is the first to investigate whether there are measurable course-level learning gains in more advanced economics or social science courses.

Intermediate Microeconomics is the course with which economics majors struggle the most, therefore, it is the course where improving student achievement is most critical. Programs of study typically require that students take the course early, both because it is foundational for elective course and so that students who may not succeed in this course learn this early enough to change majors without delaying graduation. The difficulty with the course is that it is very analytical, challenging both graphing and mathematical problem solving skills. Since classroom experiments do not reinforce these types of analytical skills it was unclear that the learning gains found in introductory courses would be observed.

Methodology

In both fall 2008 and 2009 the author taught a pair of sections of Intermediate Microeconomics. Courses were held at during consecutive class meeting times in the same classroom. Students registered for course sections in a normal way, the "treatment" section was not selected until the week before class started and there were no differences between the course sections until after the deadline to change courses had passed. Both courses were taught using the textbook chosen by the department using a typical topic outline for the course. In fall 2008 there were 34 students in the experimental course and 33 in the control, the following year numbers were 38 and 43. Demographic data was collected from each student using a survey administered using the course website for which the student received credit for one homework assignment.

Six times during the semester class consisted of a "research day" for both treatment and control classes. Students in both classes read instructions for an economics experiment, completed a multiple choice homework assignment prior to the "research day", spent a class day discussing the experiment and completed a homework assignment after the "research day". The difference between the treatments is that students in the experimental class participated in the experiment and saw the data they produced by their participation while the students in the control class did not participate in the experiment and viewed data from published research experiments. Exams, which were the major components in determining student grades, were similar in both sections and focused exclusively on analytical problem solving rather than on decision making or results from either classroom or research experiments.

Data Analysis and Results

Mean courses grades were higher in the treatment group, although not statistically significant due to high grade-variance (standard deviation of 17.65) relative to our sample size. We report regression results using numerical course grade as the dependent variable and a selection of independent variables, including demographic variables. After controlling for interactions of the treatment with class (year in school) as well as gender, we find that participation in experiments improved student outcomes by 15 points, roughly a letter grade and a half. The only other statistically significant variable is SAT math score, showing that students who have lower math aptitude (as measured by this test) show significant performance gains. While Ball et. al. found that experiments help women and younger students this study does not .

Final Grade	Coefficient	Standard Error
Experiment (1 if treatment)	15.235	8.071*
Exp*Class	-3.199	3.823
Exp*Female	-12.32	7.402
Age	-5.247	3.239
Class (year in school)	1.89	3.233
Female (1 if female)	5.134	4.50
Major (1 if econ major)	-.3388	1.113
HS Economics	1.604	.8859
HS Class Rank	1.605	.8859
SAT Math Score	-4.158	1.288*
Year 2009 (took course in 2009)	-6.158	3.850
Constant	85.100	7.009*
Number of obs 148 r^2=1657 F(11, 136) = 2.45 Prob>F = .008* * = statistically significant		

Discussion/Conclusion

Classroom experiments are popular with students and improve teaching evaluations (Ball et. al., 2006). More importantly they improve students' course outcomes in both introductory and higher level economics courses. Many experiments apply equally well to a number of social science and business disciplines and we expect that our result is not unique to economics. That experiments improve learning must come as no surprise to faculty in fields such as physics who have traditionally used them in teaching at all levels.

For more information on classroom experiments and to find some examples you might adopt, see the SERC (Science Education Resource Center) at Carleton College.

References

Ball, S. (2010). Classroom Experiments. *Pedagogy in Action: The SERC Portal for Educators*. Retrieved October 7, 2011, from http://serc.carleton.edu/sp/library/experiments/index.html
Ball, S., Eckel, C., & Rojas, C. (2006). Technology improves learning in large principles of economics classes: Using our WITS. *American Economic Review Papers and Proceedings,* 96(2), 442-446.
Dickie, M. (2004). Experimenting on classroom experiments: Do they increase learning in introductory microeconomics? Unpublished Manuscript, University of Central Florida.
Emerson, T., & Taylor, B. (2004). Comparing student achievement across experimental and lecture-oriented sections of a principles of microeconomics course. *Southern Economic Journal,* 703, 672-693.
Guest, J. (1999), Introducing games/experiments into an intermediate microeconomics module. The Higher Education Academy: Economics Network.

Collaborative Teaching at a Large Research University: Obstacles and Opportunities

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Abstract: As students are faced with real-world issues of growing complexity upon their graduation, instructors must rise to the task of preparing them to function in a world where problems are increasingly open-ended, require collaboration, and lack definitive answers. Previous literature has suggested that collaborative and interdisciplinary teaching models may prove useful in this goal. Currently, implementing such techniques at the college level has proven challenging. In this interdisciplinary mixed methods study we sought to address the question: How are collaborative, interdisciplinary teaching techniques being used on the Virginia Tech campus? This inquiry included graduate students, lecturers, adjunct faculty, and tenure-track faculty. Survey and focus group data revealed collaborative and interdisciplinary teaching existed in several different forms in departments across the institution. Focus group data also revealed the specific barriers and benefits of these techniques, and suggestions to make these techniques usable emerged. The overall aim of this proposal is to discuss these barriers, benefits, and suggestions to open up the discourse on the when to use these techniques, why we need them, and how certain obstructions can be removed or diminished.

Background

Virginia Tech, as a land grant institution, must find balance between three equally demanding missions: teaching and learning, research and discovery, and outreach and engagement. Equitably distributing focus and resources amongst these missions is challenging, and many departments within the University are currently investigating ways to re-focus on teaching and learning. This piece describes the efforts of one interdisciplinary research group's efforts in attaining this goal.

Literature Review

In their comprehensive report *Transforming Agricultural Education for a Changing World*, the Committee on a Leadership Summit to Effect Change in Teaching and Learning (2009) leveled a series of suggestions at agricultural education within higher education institutions. Their recommendations were couched within one oft-repeated warning: the demands facing agricultural education are changing (National Academy of Sciences., 2009). Educators within the field must now give students the knowledge and skills necessary to: respond to complex issues, such as developing biologically-based means of energy production, preserving the security and safety of our food supply, protecting the environment and using natural resources efficiently, and understanding the connections between nutrition and health to address important issues such as obesity (National Academy of Sciences, 2009, p. 13).

The Committee (2009) argued that tomorrow's students will need stronger communication, problem-solving, and critical thinking skills. They will need to be better at team-building, conflict management, and leadership. They will also need to be adaptable. Failure to meet these needs could result in U.S. colleges and universities becoming less relevant and competitive in a global setting, as well as the loss or pollution of U.S. resources (National Academy of Sciences, 2009).

To address the changing landscape of agricultural education, the Committee (2009) made several suggestions, including:
1. Institutions should expand the undergraduate experience to include opportunities to develop skills like communication, teamwork, and leadership. These experiences should include opportunities for students to participate in undergraduate research, outreach and extension, and internships and real experiences. These experiences should also expose students to a variety of diverse and international perspectives.
2. Institutions should provide instructors with opportunities for professional development, including resources for the development of new courses, curricula, and teaching materials.

3. Collaboration within institutions and between institutions and stakeholders to encourage interdisciplinary work and connect knowledge gained in the classroom to real world situations.
4. Institutions should involve a broad array of stakeholders in planning how to recruit, retain, and prepare agricultural education students.

It is not difficult to see how these suggestions, framed as a necessity for institutions of higher education, apply to disciplines outside of agricultural education. For many institutions, beginning to meet these demands will require faculty and administration to redefine what the typical undergraduate experience looks like. It may also require a new definition for what it means to teach at the college level. Interdisciplinary and collaborative teaching practices can help higher education meet these goals (Bloss, Hanstedt & Kirby, 2010; Clarke & Kinuthia, 2009; Evans et al., 2009; Minnis & John-Steiner, 2006; Newell, 2010).

Methodology and Results

Funded by the Integrated Internal Competitive Grants program in the College of Agriculture and Life Science, our interdisciplinary research team began to investigate the question: How is collaborative teaching being used on the Virginia Tech campus? This research was guided by the aim of developing a "best practices" model for implementation across campus. Through a sequential mixed methods approach, the research team drew upon survey and focus group data, and our qualitative data was used to inform our previously collected quantitative data. A survey created by the researchers was sent electronically to over 2100 participants with 285 participants responding from eight different colleges. Throughout this process, obstacles and opportunities related to collaborative and interdisciplinary teaching also emerged. The following opportunities were identified: (a) Instructors learn from colleagues or help colleagues learn, get feedback, (b) Instructors get exposure to new interdisciplinary knowledge, (c) Students increase their engagement and develop their learning skills, and (d) Students have role models for successful collaboration. The following obstacles were identified: (a) Requires extra time and coordination/compromise between instructors, (b) Grading as a team is challenging, (c) Multiple instructors can have a negative impact on students (d) Individual instructors may be unsure what content is being delivered successfully, (e) Banner/Course management systems are uncooperative, (f) Resources negate the true model of CT and necessitate the modular model, and (g) Engaging in CT can have a negative impact on tenure, often receives little support from administrators. In discussing these obstacles, many useful solutions to these issues also emerged, relevant to both faculty and administrators. Our aim is to discuss these solutions and suggestions with the hope of making these teaching tools more accessible when they are appropriate.

Conclusion

Collaborative and interdisciplinary teaching models are currently being used across campus, although not always in ways that benefit the students. In some instances these models are used because of the impact they have on learning; in others they are used as a cost-saving measure. Certain models appear to be more beneficial to the students' experiences than others. Instructors want to make use of these models to benefit students, but many have their efforts blocked at the departmental and administrative level. Issues with Banner and course management systems, which could be changed more expediently than departmental culture, are especially frustrating for faculty members. In order to make these techniques more appealing to instructors, department heads and administrators would need to begin recognizing and supporting these models, especially during the tenure process. Overall, higher education institutions are not currently prepared to accommodate these teaching techniques. Change will be necessary in order to prepare students to be lifelong learners capable of tackling complex, open-ended questions. Our exploration of faculty perceptions of collaborative teaching have also provided the foundations for further exploration of the topic with students, including but not limited to students' perceptions of course structure and levels of learning achieved in collaboratively versus non-collaboratively taught courses.

References

National Academy of Sciences. (2009). *Transforming agricultural education for a changing world*. Washington, DC: The National Academies Press.
Clarke, P. A. J., & Kinuthia, W. (2009). A collaborative teaching approach: Views of a cohort of preservice teachers in mathematics and technology courses. *Intl. J. of Teaching and Learning in Higher Edu.*, *21*(1), 1-12.
Minnis, M., & John-Steiner, V. (2006). Interdisciplinary integration in professional education: Tools and analysis from cultural historical activity theory. *Issues in Integrative Studies*, *24*, 32-88.

Competencies of Nurse Educators in Curricular Design: A Delphi Study

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Abstract: Little is known of the competencies nurse educators need to design curriculum. Much existing research on competencies in nursing has focused on nursing student competencies, clinical nurse competencies, and general nurse educator competencies. The specific problem was that nursing leaders and leading nursing organizations have not offered specific competencies for nurse educators designing nursing curriculum, especially if nurse educator proficiency with curriculum decision-making affects nursing graduate performance at licensure examinations. The mixed method modified Delphi design study helped a panel of 37 nurse educators identify and agree on a set of competencies nurse educator must demonstrate when designing nursing curriculum at the community-college-level in Virginia. Participants reached agreement on 27 of 34 competencies (79%). Several major themes emerged from the data analysis and were organized according to the two categories. Despite the fair degree of agreement ($W = 0.390$) among participants during the rounds, the percent agreement between the two categories and among the three areas showed an increase with each round, whereas the variances in the mean decreased in most of the areas.

Literature Review

The nurse educator shortage has led to heightened interest in the nurse educator roles and competencies (Poindexter, 2008). Acker (2003) contended most research on nurse educator competencies has focused on essential clinical practices and skills in teaching and student relationships, rather than curriculum development and design. However, educational leaders and leading nursing organizations such as the National League of Nursing (NLN) have placed persistent emphasis on curriculum (Paulsen, 2008). In a position statement, the NLN (2002) stated that "[n]urse educators who practice in academic settings also must have knowledge and skill in curriculum development, assessment of program outcomes, and being an effective member of an academic community, among other things (para. 11). The credentials and competencies qualifying nurse educators to develop and design curriculum were unclear. Unclear was if the level of the educational nursing-program preparation affected nurses' credentials related to curriculum. The lack of specific competencies may have a negative impact on nurse educators' performance leading to less than optimal curriculum decision-making, affecting nursing students' performance (Little & Mallliken, 2007; Rossetti & Fox, 2009).

Method and Results

The focus of the mixed method modified Delphi design study was to identify and agree on a set of competencies nurse educators must demonstrate when designing nursing curriculum at community colleges offering associate degree nursing preparation in Virginia. In three rounds, 37 participants from 13 of 22 community colleges in Virginia determined the importance of 34 competencies and 160 item-statements divided in two categories (Mindset and Skillset) and three areas (Educator, Collaborator, and Scholar). The instrument was adapted with permission of SREB. The study had received an IRB approval. The results of χ^2 calculation with a $p < .05$ significance level indicated a statistically significant difference; therefore, the three null hypotheses were rejected. It was established that there was a difference in responses between categories; the mindset competencies ($\chi^2 = 789.0$) were valued higher than the skillset competencies ($\chi^2 = 4442.7$). Rejecting the second hypothesis, it was concluded that there was a significant difference in responses among the different nurse educator roles; the role of the nurse educator ($\chi^2 = 923.4$) was valued higher than the roles of collaborator ($\chi^2 = 204.9$) and scholar ($\chi^2 = 199.8$). See Table 1 and figure 1 for details. This finding was congruent with the literature review discussing the nature of the Associate Degree Nursing (ADN) educator role associated with teaching and minimum service and research expectations (Brady, 2007). The third null hypothesis was rejected and it was established that there was a significant difference in responses between competencies in categories and areas. Category of Mindset and area of Educator from the category of Skillset were valued higher than the other category or areas. The finding was unique for the study.

Discussions

Participants reached agreement on 27 of 34 competencies (79%). Several major themes emerged from the data analysis of these 27 competencies. The themes were organized according to the two categories and the three areas. In the category of Mindset the identified themes was educational background or preparation. In category of Skillset the themes were organized according to the three areas corresponding to the nurse educators' roles. In the role of nurse educator, the identified competencies included (a) curriculum competencies, (b) professional competencies, and (c) personal competencies. In the role of collaborator, the competencies were (a) effective partnership and (b) building relationships. In the role of scholar, the participants identified (a) promoting nursing scholarship and (b) disseminating knowledge of best practices in nursing education, research, and nursing curriculum design as necessary competencies.

Acknowledgment

References

Acker, J. R. (2003). Class acts: Outstanding college teachers and the difference they make. *Criminal Justice Review (Georgia State University), 28*(2), 215-231.

Brady, M. S. (2007). Educational innovations: Recruitment and retention of associate degree nursing faculty. *Journal of Nursing Education, 46*(4), 190-192.

National League for Nursing. (2002, May 18). *The preparation of nurse educators* [Position Statement]. NLN.

Little, M., & Milliken, P. (2007). Practicing what we preach: Balancing teaching and clinical practice competencies. *International Journal of Nursing Scholarship, 4*(1), 1-14.

Paulsen, C. (2008). *Faculty teaching experiences in innovative nursing curriculum: An interpretive phenomenological study*. (Doctoral dissertation, University of Phoenix, 2008). Retrieved from ProQuest Digital Dissertations. AAT 3349282.

Poindexter, K. A. (2008). *Essential novice nurse educator role competencies and qualifications to teach in a pre-licensure registered nurses education program*. Doctoral Dissertation, Western Michigan University, United States-Michigan. Retrieved from ProQuest Dissertation & Theses database.

Rossetti, J., & Fox, G. P. (2009). Factors related to successful teaching by outstanding professors: An interpretive study. *Journal of Nursing Education, 48*(1), 11-16.
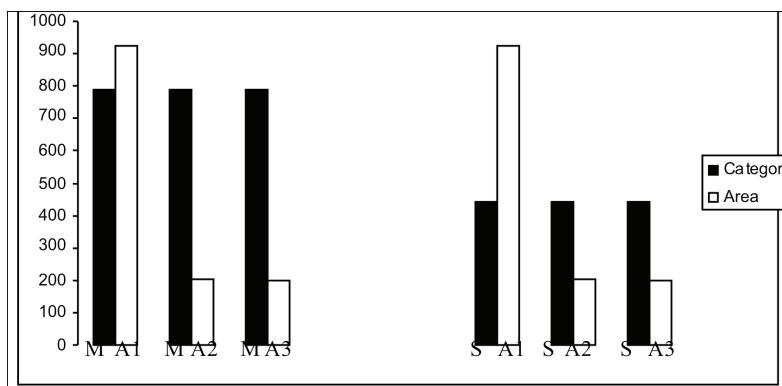
Figure 1. Mean chi-square values for differences in responses among competencies in categories and areas. Each category (black column) is compared to the three areas (white column). M=Category of Mindset, S=category of Skillset. A1=Area of Educator, A2=Area of Collaborator, A3=Area of Scholar

Developing Graduate Student Competencies Though Faculty-Student Coauthorship

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Abstract: Beyond mere knowledge transmission, writing for publication is integral to scientific inquiry. The pedagogical practice of faculty-student coauthorship is commonly used to facilitate graduate students' entry into published disciplinary dialogue. However, little is known of the learning outcomes associated with this practice. Through qualitative analysis of the narratives of 20 science, technology, engineering and mathematics (STEM) faculty who coauthor with graduate students, this study explores faculty perceptions of student learning outcomes resulting from coauthorship. Results suggest that perceived learning outcomes include a range of critical competencies for graduate education.

Introduction

Within their respective disciplines, science, technology, engineering and mathematics (STEM) professionals must excel at both conducting empirical inquiry and disseminating results through academic writing. Scrutiny of the relationship between scientific inquiry and scientific writing suggests the two are deeply intertwined. Beyond being a "mere scribal act" (Paré, 2010, p. 32), writing is instead viewed as "a constitutive part of science" (Norris & Phillips, 2003, p. 226). Investigations of how STEM graduate students learn to write for publication identify the criticality of faculty involvement (Paré, 2010). Within the context of a larger study undertaken to investigate STEM graduate student research skill development (Feldon et al., 2011), the practice of faculty-graduate student coauthorship emerged unexpectedly as key pedagogical practice. As a mathematics faculty participant noted, "[Coauthoring with a faculty member] is very different than what a student might get in a classroom. It is a much more intense experience…it teaches [students] a lot more than a class." Given its centrality in STEM graduate education, surprisingly little is known of the competencies STEM faculty perceive that students acquire through this "intense experience." Using the pedagogical foundation of cognitive apprenticeship, we explore narratives of STEM faculty who coauthor with graduate students to identify faculty perceptions of student learning outcomes resulting from faculty-student coauthorship.

Methodology

We interviewed 20 STEM tenure-track or tenured faculty at a large research-intensive university about their perceptions of and experiences with faculty-graduate student coauthoring. Five were female. Seven were drawn from science, 9 from engineering, and 4 from mathematics. With participant permission, interviews were taped and transcribed verbatim for analysis. Austin and McDaniels' (2006) taxonomy of graduate student competencies served as the study's analytic framework. These authors identify four critical competency areas: (1) Understandings of scholarly work; (2) Knowledge and skills relevant to faculty work; (3) Interpersonal skills; (4) Professional attitudes and habits. Austin (2010) has recently suggested these competencies areas apply to all future scholars, regardless of anticipated career paths.

Results and Conclusions

Understanding of Scholarly Work was well represented in faculty narratives in two ways. The first is *knowledge of the discipline,* or disciplinary socialization of students. For example, a mathematics professor stated, "[when a student coauthors with you], they know how you write a paper, they see how meticulous you are, and they see how the game is played." The second is *professional identity as a scholar*. For example, an engineering professor offered, "I'm happy when [students] write; it is an important part of being an academic. You have to tell your story somehow…if no one ever knows about [your research], you haven't done it."

Knowledge and Skills development centered on the research process, defined by Austin and McDaniels (2006) as "the heart of preparation as a scholar" (p. 100). Representative faculty comments included, "Knowing how to make things interesting for the reader is a very different skill than just proving a result" (mathematics professor); "[Coauthoring] is a good way to show [students] how to structure a paper and get them reading the primary

literature" (science professor); "[I tell students] 'Ok, now you have written these sections. Let's rewrite them in a more rigorous way and this can actually become a paper'" (Engineering Professor).

Interpersonal Skills were honed through coauthorship, not just between faculty and student coauthors, but also between peer-to-peer student coauthors. As a mathematics professor suggested, "Learning how to collaborate with others is important. When you work with others, you learn more than just working with yourself."

Professional attitudes and habits appeared in faculty narratives in terms of a range of ethical considerations (e.g., "I don't put my name on papers just because I paid for it through a grant"(science professor); "It was a problem with a big group [of coauthors] because when you get to a large group, the free rider syndrome kicks in" (science professor); "[the student coauthor] has to have intellectual curiosity and take ownership of the work"(engineering professor).

Faculty perceive coauthoring with graduate students to result in several valued student learning outcomes. Thus, achieving a better understanding of this pedagogical mechanism is critically important. This study begins to address the gap of pedagogical knowledge surrounding coauthorship.

References

Austin, A. E. (2010). Reform efforts in STEM doctoral education: Strengthening preparation for scholarly careers. In J. C. Smart (Ed.), *Higher Education: Handbook of Theory and Research*. New York: Springer.

Austin, A. E., & McDaniels, M. (2006). Preparing the professoriate of the future: Graduate student socialization for faculty roles. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research (Vol. 21*, pp. 397-456). Netherlands: Springer

Feldon, D. F., Peugh, J., Timmerman, B. E., Maher, M. A., Hurst, M., Strickland, D., Gilmore, J. A., & Stiegelmeyer, C. (2011). Graduate students' teaching experiences improve their methodological research skills. *Science, 333*(6055), 1037-1039

Norris, S. P., & Phillips, L. M. (2003). How literacy in its fundamental sense is central to scientific literacy. *Science Education, 87*, 224-240

Paré, A. (2010). Slow the presses: Concerns about premature publication. In C. Aitchison, B. Kamler, & A. Lee (Eds.), *Publishing Pedagogies for the Doctorate and Beyond* (pp. 30-46). New York, NY: Routledge.

Doctoral Education: Student and Faculty Perspectives

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Abstract: This paper reports on the results of a four year longitudinal study of PhD students and their supervisors. The students were all registered in lab-based PhDs within a research-intensive university within the UK. Sequential concept map-mediated interviews were used to gain insight to the students' and supervisors' perspectives on the content and the process of gaining a doctorate. The evidence gained suggested that the students tend to focus on the PhD in terms of a product to be completed (such as writing a thesis and writing for peer-reviewed journals), whilst the supervisors tended to concentrate more on the process of learning and scientific development, placing the student's contribution into the wider disciplinary discourse. The structural observations from the concept maps generated within this study are that the students perceive the PhD as a linear structure, whereas the supervisor is more likely to generate a cyclic structure to illustrate the dynamic, iterative processes of scientific research more generally.

Literature Review

Concept maps have been widely used to interrogate the quality of understanding held by students at all levels of education (Novak, 2010; Turner, 2011). The qualitative analysis of concept maps has revealed relationships between the structures produced and the nature of the understanding displayed (Kinchin et al., 2000). The spokes, chains and networks described by Kinchin et al. have been augmented with cyclic maps identified by Safayeni et al (2005), in which concepts are viewed as continuously changing and influencing each other in a loop. Such cyclic representations are seen to be more dynamic than other structures which seem to represent more static relationships (for comparison see Figure 1).
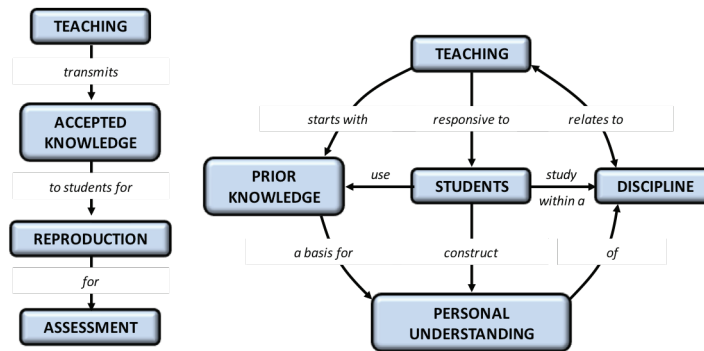
Figure 1. Linear and cyclic concept maps of teaching (after Kinchin 2011).

Methodology

In this longitudinal study (Kandiko and Kinchin, 2009; 2010), the authors interviewed PhD students and their supervisors (separately) in order to gain a picture of how each viewed the content of the PhD and the nature of doctoral study. The interviews were mediated by the production of concept maps (Kinchin et al., 2010) that were then the main artefact for analysis, augmented by transcripts from the interviews. The interviews were repeated every four months with students and with supervisors throughout the life of the PhD, during which, both parties were invited to develop the ideas presented in their maps (Figure 2).
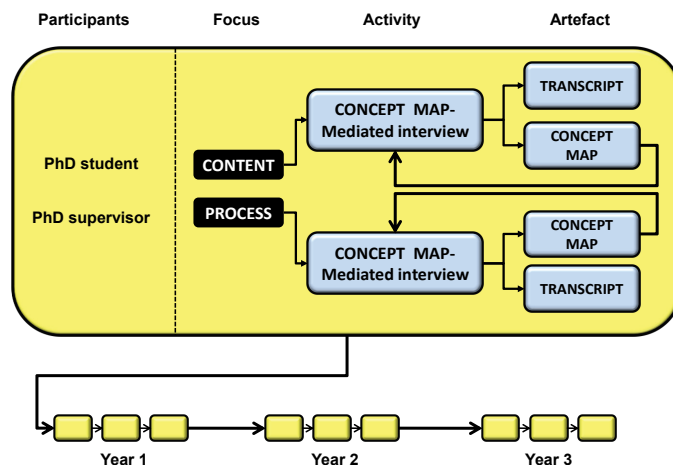
Figure 2. Graphical summary of the research process

Results

The concept maps revealed that the supervisors and students held different perceptions of both the content of the PhD and the process of doctoral study. The supervisors saw each student's PhD as part of a bigger research agenda, and tended to view doctoral study as a process rather than as a product. The PhD was seen as a time to learn the process of research in the discipline, a process repeated throughout a scientific career. The students were more focused on their own studies than on the discipline as a whole, and were very product (thesis) oriented – represented as a linear pathway.

Discussion

Concept mapping revealed more than interviews alone. The content and the structure of the maps produced were indicative of the divide in understanding between students and supervisors, even when they appear to be talking about the same topic and using the same terms. The process of map production is seen as a useful addition to the doctoral supervision process, and could be used as a tool to facilitate developmental learning. The cyclic processes that are illustrated by the supervisors indicate their appreciation of the changing nature of understanding and the necessity for repeated interaction with the material being studied.

References

Kandiko, C. B., & Kinchin, I. M. (2009) PhD Supervision as Intellectual Courtship. *Paper presented at the Society for Research into Higher Education (SRHE) Annual Conference*, 8th – 10th December, Newport, Wales.

Kandiko, C. B., & Kinchin, I. M. (2010) What is a PhD? Process versus product in PhD supervision. *Paper presented at the 4th International Conference in Concept Mapping*, 5th-7th October, Vina del Mar, Chile.

Kinchin, I. M. (2011) Relating knowledge structures to learning styles and university teaching. In S. Rayner & E. Cools (Eds.), *Style differences in cognition, learning, and management* (pp. 129-142) Routledge, London, UK.

Kinchin, I. M., Hay, D. B., et al. (2000) How a qualitative approach to concept map analysis can be used to aid learning by illustrating patterns of conceptual development. *Educational Research, 42*, 43-57.

Kinchin, I. M., Streatfield, D., et al. (2010) Using concept mapping to enhance the research interview. *International Journal of Qualitative Methods*, 9, 52-68.

Novak, J. D. (2010) *Learning, creating, and using knowledge: Concept maps as facilitative tools in schools and corporations* (2nd Edition) Routledge, Oxford, UK.

Safayeni, F., Derbentseva, N., et al. (2005) A theoretical note on concepts and the need for cyclic concept maps. *Journal of Research in Science Teaching*, 42, 741-766.

Turner, S. (2011) Evaluating learning through the use of concept maps. *Proceedings of the 3rd Annual Conference on Higher Education Pedagogy* (pp. 21-22), Virginia Tech, USA.

Does the Gender of School Personnel Influence Perceptions of Leadership on the Teacher Working Conditions Survey?

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Abstract: This study investigated whether the gender of school building leaders, teachers and other building roles influences perceptions of leadership as measured by the Teacher Working Conditions (2008) Survey in North Carolina Schools Public Schools. Using ANOVA techniques on data that was controlled for confounding variables through data mining and propensity score matching techniques, the study revealed that the gender of the respondent did not have a significant difference on teacher perceptions of leadership among schools in North Carolina although the role of the respondent was significant across all dimensions. The interaction effects between gender and role of the respondents were significant on the major dimensions of leadership (School Leadership and Educator Leadership).

Literature Review

Environmental surveys generally seek to solicit feedback about the levels of satisfaction on organizational core functions. In North Carolina, Governor Easley enacted the Teacher Working Conditions (TWC) Survey Initiative in 2001, making North Carolina the first state in the nation to initiate a survey that asked educators about what they needed to be successful in their jobs (Maddock, 2009). The TWC survey is an anonymous online tool that is taken by certified public educators in K-12 settings every two years. The principal is key to influencing the school culture (Huang, 2001) through reinforcing the vision, shared assumptions, espoused and shared core values, and expectations (Crowther, Ferguson & Hann 2008).

Methodology

The original data set, the 2008 North Carolina Teacher Working Conditions Survey (N = 103,276), was subjected to random data mining techniques that allowed for the protection of the assumption of equal variances between gender groups while balancing the cell sizes (N = 38,647). And the subsequent sample was re-sampled using a propensity score stratification procedure to generate a sample where the probability of any impact of confounding variables in the data set on gender was reduced to a coin flip (N = 7,287). The final sample was then examined to verify that this data preparation regimen retained the relative characteristics of the original data set. After this was verified, ANOVA procedures including plots of estimated marginal means were used to identify and explore any significant main or interaction effects for gender or role of respondents may have had on the two leadership dimensions, (School Leadership and Educator Leadership).

Results and Discussion

School Leadership

Table 1. Gender, Role and Gender/Role Interaction

Dependent Variable: School Leadership

Source	df	F	Sig.	Partial Eta Squared
Corrected Model	5	183.116	.000	.112
Intercept	1	84793.383	.000	.921
Gender	1	3.311	.069	.000
Role	2	382.889	.000	.095
Gender * Role	2	4.183	.015	.001
Error	7281			
Total	7287			
Corrected Total	7286			

a.   R Squared = .112 (Adjusted R Squared = .111)

On the School Leadership dimension (Table 1), gender did not indicate a significant effect (F = 3.31, p < .069) but role (F = 382.89, p < .000), and the interaction effect between gender and role (F = 4.18, p < .015) were significant. An examination of the marginal means for the interaction effect indicated that females in Instructional and Administrative roles had higher scores than males but females had lower scores than males in the Other role.

Educator Leadership

Table 2. Gender, Role and Gender/Role Interaction

Dependent Variable: Educator Leadership

Source	df	F	Sig.	Partial Eta Squared
Corrected Model	5	222.232	.000	.133
Intercept	1	83182.119	.000	.920
Gender	1	.120	.729	.000
Role	2	473.117	.000	.115
Gender * Role	2	3.027	.049	.001
Error	7264			
Total	7270			
Corrected Total	7269			

a. R Squared = .133 (Adjusted R Squared = .132)

On the Educator Leadership dimension (Table 2), gender did not indicate a significant effect (F = .120, p < .729) but role (F = 473.12, p < .000), and the interaction effect between gender and role (F = 3.03, p < .049) were significant. An examination of the marginal means for the interaction effect indicated that females in Instructional and Administrative roles had higher scores than males but females had lower scores than males in the Other role. On the summary item about school leadership gender (F = .536, p < .464) and the interaction effect between gender and role (F = 1.79, p < .167) did not indicate significant effects but role (F = 94.60, p < .000), was significant. Since there was a lack of interaction effect, marginal means were not examined.

Conclusion

Although the study did not yield a statistically significant result between gender and school leadership, the principalship is a performance based job and the principal still influences the school working conditions regardless of gender. The significant interaction between gender and role on school leadership invites attention to both practice and theory regarding the preparation of teachers and principals in higher education. Roles for both teachers and principals need, modifying and/or consolidating with the goal of creating satisfying work environments. Both teachers and principals need to be equipped with functional literacies that promote the enculturation of leadership practices that benefit schools.

References

Crowther, A., Ferguson, M., & Hann, L. (2008). *Developing teacher leaders: How teacher leadership enhances school success*. Thousand Oaks, CA: Corwin Press.

Maddock, A. (2009). The North Carolina teacher working conditions: The intersection of policy and practice. Retrieved February 6, 2011 from http://www.newteachercenter.org/pdfs/NC_TWC_Policy_Practice.pdf

Huang, S. (2001). Teachers' perceptions of high school environments. *Learning Environments Research 4*: 159-173.

Effects of an Interdisciplinary Simulation Activity on Team Collaborating Skills

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Abstract: Discipline-specific educational programs face challenges in preparing health care professionals to work in interprofessional teams. In this diverse health care system, effective communication and collaboration is essential for quality patient care. According to research studies interdisciplinary simulation activities enhances team collaborating skills. The NCSBN (2007) recommends didactic nursing teaching to be reinforced with simulation activities and clinical practice. The purpose of this mixed method study was to examine how an interprofessional simulation activity affects team collaborating skills. A sample of 83 students from three health care programs participated in a simulated mass causality interprofessional activity. Students acted as healthcare providers in IP teams and applied discipline-related knowledge and skills. The participants practiced peer-teaching, delegation, and collaboration. A 3 x 2 mixed design analysis of variance was computed for the data set. Based on calculations, it was concluded that the collaboration skills improved, at significant levels, during the post-survey for the PA, RN and RT students.

Literature Review

In 2001, the Institute of Medicine (IOM) in the Quality of Health Care in America Report emphasized "heightened awareness" about the need of the healthcare professionals to work in interprofessional teams (IPTs) to improve the quality and safety of patient care. This need can be met by encouraging the IPTs to communicate effectively in addressing the complex health care needs of patients. Furthermore, the World Health Organization (WHO) has emphasized the implementation of an interprofessional model of care to promote safe and effective patient care (Baker, Pullings, McGraw, Dagone, Hopkins-Rosseel, & Medves, 2008). The American Association of College of Nursing (AACN, 2010) defines teamwork and collaboration as one of six core concepts of nursing education. An expected outcome for pre-licensure programs in nursing is the ability to practice effectively within nursing and inter-professional teams, to foster open communication, to demonstrate mutual respect, and to share decision making. To prepare the next generation of health care professionals, interprofessional simulation activities will create opportunities to enhance team collaborative skills. Durham and Alden (2008) concludes "[t]he use of simulation as a teaching strategy can contribute to patient safety and optimize outcomes of care, providing learners with opportunities to experience scenarios and intervene in clinical situations within a safe, supervised setting without pausing a risk to a patient"(p. 1). Nursing pedagogy is an example of discipline that has recognized simulation for teaching and evaluating competencies (Durham & Alden, 2008).

Objectives and Goals

Upon completion the participants in this session will be able to: (1) Validate the integration of an Interprofessional Simulation Activity into the college curriculum, (2) Design an interprofessional simulation activity, (3) Evaluate the outcomes of Interprofessional Simulation Activity collaboration skills, and (4) Network with colleagues and identify best practices in interprofessional education.

Methodology

This study used a mixed method to examine the effects of interprofessional simulation activity on team collaborating skills. A confidence rating scale ranging from 0 (low confidence) to 10 (high confidence) was used to collect the quantitative data. The qualitative evaluation was based on open ended questions. The following research question and a set of hypotheses were tested: What are the effects of an interdisciplinary simulation activity on team collaborating skills? H_{1o}: Students interprofessional team collaborating skills will not be affected by the participation in an interprofessional simulated activity. H_1: Students interprofessional team collaborating skills will be affected by the participation in an interprofessional simulated activity. The Self –Efficacy Measure of Interprofessional Practice Competencies for Students tool was adapted with permission of the author.

Analysis and Results

Quantitative Analysis and Results: Content analysis helped to organize the qualitative data. A 3 x 2 mixed design analysis of variance was computed for the data set. The between-subject variable was group (PA, RT, RN) and the within-subject variable was time of testing (pre-post). "Between-subjects effects are those who are in one group or another but not in both…Within-subject effects are experienced by subjects repeatedly over time" (Yaffee, n.d.). The results of F test indicated a main effect of time $F(1,39)=514$, $p<0.001$. Scores at the post-test (mean = 9.1) averaged one point higher than at the pre-test (mean = 8.1). There was also a significant main effect of group $F(2,39)=3.577$, $p=0.037$. In general the RT scores were higher than the other two groups (averaged across time of testing). Finally, and most importantly, there was a significant time of testing by group interaction $F(2,39)=31$, $p<.001$. Figure 1 demonstrated that the PA students began with a higher baseline of collaboration skills than the other two groups; however, the amount of improvement of collaboration skills for the RN's and RT's was greater than the amount of improvement of collaboration skills for the PA students.

Qualitative Analysis and Results: The content analysis of the participant responses is based on normothetic approach to systematic investigation. Several major themes with high frequency and positive direction emerged from the three groups, PA, RN, and RT. ts. IP activity resulted in a beneficial learning and team collaboration. The major team was "beneficial" (F=40, I=high, D=(+)). This conclusion is congruent with the quantitative analysis of this mixed research method. The analysis of this IP activity suggests that this type of stimulation may be useful component of students' preparation to meet the requirements of a collaborative work place environment.
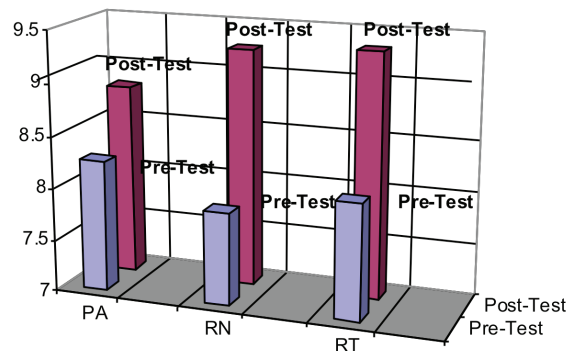
Figure 1. Pre-and-post-test Comparison

Discussion

Design: Each IP team included a student from physician assistant (PA), nursing (RN), and respiratory therapy (RT) programs. Mass casualties multiple trauma scenarios including low, moderate, and high fidelity simulation. After one hour of simulation, the teams attended a combined debriefing session where they presented their cases and describe their rationale for the diagnosis, treatment, and outcome based on standards of care. The students' confidence level increased significantly post simulation, overall, and within groups. Collaboration may have been a contributing factor for the improvement. Comments from PA students identified limited number of clinical practice hours to be a factor in the smaller degree of improvement. The PA students began with a higher baseline of collaboration skills than the other the groups of students; however, the amount of improvement of collaboration skills for the RN's and RT's was greater than the amount of improvement of collaboration skills for the PA students (see Figure 1). Future research should include an integration of the IP simulation activity in a capstone course.

References

American Association of College of Nursing. (2009, February 19). *The essentials of baccalaureate education for professional nursing practice*. Washington, DC: Author.

Baker, C., Pullings, P., McGraw, R., Dagone, J., Hopkins-Rosseel, D., & Medves, J. (2008). Simulation in interprofessional education for patient-centered collaborative care. *J. of Advanced Nursing, 64*(4), 372-379.

Durham, C. F. & Alden, K. R. (2008, March.). *Chapter 51. Enhancing patient safety in nursing education through patient simulation*. In Hughes, Patient safety and quality: An evidence-based handbook for nurses. AHRQ Publication No. 08-0043. Rockville, MD: Agency for Healthcare Research and Quality.

Institute of Medicine Committee on Quality of Health Care in America. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academy Press.

National Council of State Board of Nursing. (2007, April 22). *The role of simulation in nursing education: A regulatory perspective*. Paper presented at AACN Hot Issues Conference. Denver, CO.

Yaffee, R. A. (n.d.). *Mixed analysis of variances models with SPSS*. Information Technology Services/Academic Computing Services.

Effects of Science Demonstration Formative Assessments in a University Science Course

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Abstract: The present study investigated the effects of two different types of science demonstration formative assessments on students' understanding of chemistry concepts in a large, introductory chemistry class. The design was quasi-experimental with data from two consecutive semesters of the same course taught by the same instructor. Both sections experienced the same science demonstrations (102, in total), and were offered a science demonstration worksheet strategy. One section completed the worksheet outside of class and the other section completed the worksheet during class time collaboratively with peers and the instructor. Results reveal that students who completed the science demonstration worksheets in-class as part of the formative assessment received significantly higher scores on the Chemical Concepts Inventory at the end of the semester than the other group. Attrition rates for the two groups were not significantly different. The implications of these results for including science demonstration formative assessments in science courses are discussed.

Recent science education reform efforts challenge faculty to replace traditional methods of teaching in the large lecture hall with strategies that engage students and promote learning (NRC, 1996). One option available for instructors who use science demonstrations to engage students, improve achievement, and promote an active learning environment in the large lecture hall is the Science Lecture Demonstration (SLD) method of teaching (Majerich & Schmuckler, 2007). As described in research, the SLD method requires the active participation of students in the discussions of science when phenomena are observed and assigned meanings in discussions of science demonstrations. As discussions ensue, the instructor guides the students toward scientifically accurate explanations of chemistry. When the demonstrations are the vehicle for the course content, the professor can adjust the instruction to accommodate students' language used when they give meaning to their observations. In doing so, the students are being accommodated and continually assessed during the teaching-learning sequence in an attempt to maximize their learning of course material. When demonstrations are used in this manner it is offered that they can be considered a type of formative assessment (Wiliam, 2009). This study provides empirical evidence from university chemistry classes in which science demonstration formative assessments were used.

Theoretical Frameworks

The theory of Human Constructivism views learners as fundamentally adapted to create personal meanings when engaged in activities, thus the passive role of the learner is rejected (Mintzes, Wandersee, & Novak, 2005). When confronted with conflicting sensory data in light of an individual's prior experiences, no two learners construct exactly the same meanings even when presented with identical activities (experiences). Differences in how the learners make sense of experiences can be bridged through peer discussion, whereby personal meanings become increasingly social. Also, a six-stage model of formative assessment informs this study and has been used elsewhere (Majerich, Stull, Jansen Varnum, Gilles, & Ducette, 2011). This model is dynamic, where the active roles of the instructor and students are made explicit, and recurs throughout the teaching-learning sequence. In this model, formative assessment is theorized and the connections between the roles of the instructor and students are made explicit. The theory of human constructivism and the model of formative assessment are synergistically linked through the active roles of the students and the instructor as meanings are assigned to experiences.

Methods and Subjects

This study was conducted at a large, public, urban university. Data were obtained from two fifteen-week introductory chemistry courses that met twice a week for a total of three hours and forty minutes and included one professor and 180 and 176 students each. Both groups saw the same 102 demonstrations, completed 19 quizzes, and 3 instructor-created course examinations. On quizzes and examinations, students were asked to delineate terms, recall aspects of the demonstrations, and apply chemistry learned to novel situations. Over the semester, there were 6 homework assignments related to the content of the science demonstrations. In addition, the students completed

the Chemical Concepts Inventory (CCI) (Mulford & Robinson, 2002) as a pre- and post-test. This test has a strong research base and is commonly used to measure students' conceptual understanding of basic chemistry topics. At the end of each of the courses, the students completed a survey to capture their perceptions of the classroom learning environment (Majerich & Schmuckler, 2007).

Worksheet Strategy

Each student completed a worksheet during class on which they were asked to list the materials/equipment used, procedure/processes used, and the science phenomena observed and explained. Students were asked three questions: "What terms and their respective meanings were used and/or developed in this demonstration?"; "What terms and their respective meanings from the previous demonstration were used in this demonstration?"; and, "How does the previous demonstration help you in understanding what occurred in the science phenomena observed in this more recent demonstration?" The control group completed the worksheet independently outside of class, but the worksheets were never collected. The experimental group completed the worksheets during class time collaboratively with the instructor and students, and the worksheets were collected at the end of each class then returned during the next scheduled class. For the control group, the formative assessment was the discussion of the science demonstrations. For the experimental group, the formative assessment included the discussion of the science demonstration along with the completion of a worksheet for each demonstration.

Results

A statistical power analysis was completed to establish the sample size needed for robust analyses to accommodate for attrition. According to the calculations, the sample size of 356 is more than adequate. The attrition rates for the control and experimental groups were 7.6% and 9.6%, respectively; however, the difference of proportions was not significant. Chi-squared tests of independence were applied to class size, gender, GPA at the beginning of the semester, year in college, the CCI pre-test score, and the number of homework assignments completed) with the level of test significance set at $p \leq .05$. Analyses revealed no significant differences. On the whole the experimental class outperformed the control class. While the CCI pre-test scores were not statistically significantly different, the CCI post-test scores were. Regression analysis was used to control for differences among students, to quantify the effect of the in-class demonstration and worksheet completion. In the final analysis, three variables proved to be significant at the .04 level or better. The R Square of .172 indicates that 17.2 percent of the variation in the dependent variable, the CCI post-test scores, is explained by the entered independent variables (percent correct on CCI pre-test, total number of quizzes taken, number of homework assignments completed) taken together.

Discussion and Implications

While proponents of education reform suggest that formative assessment should be given prominence in today's classrooms, this study offered results to substantiate the claim. It is apparent that integrating science demonstration-related formative assessments, in this case changes need to instruction, results of quizzes, and the completion of an in-class worksheet, had a significant effect on students learning and understanding of fundamental chemistry concepts. On average, students who completed the worksheet in-class collaboratively with the professor and students achieved significantly higher scores on a test that measured conceptual understanding when compared to the other group. The regression results quantified the effect.

References

Majerich, D. M., & Schmuckler, J. S. (2007, May/June). Improving students' perceptions of the benefits of science demonstrations and content mastery in a large-enrollment chemistry lecture demonstration course for non-science majors. *Journal of College Science Teaching*, 36(6), 60-67.

Majerich, D. M., Stull, J. C., Varnum, S. J., Gilles, T., & Ducette, J. P. (2011). Facilitation of formative assessments using clickers in a university physics course. *Interdisc. J. of e-Learning and Learning Objects, 7,* 11-24.

Mintzes, J. J., Wandersee, J. H., & Novak, J. D. (2005). *Teaching science for understanding: A human constructivist view.* San Diego, CA: Academic Press.

Mulford, D.R. & W.R. Robinson. (2002). An inventory for alternate Conceptions among first-semester general chemistry students. *Journal of Chemical Education, 79*(6).

National Research Council (NRC). (1996). *National science education standards.* Washington, DC: Natl Ac Press.

Wiliam, D. (2009). Assessment for learning: Why, what and how? London: Elanders.

Evaluation of Knowledge Deficit and Information Flow Within the Virginia Horse Community

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Abstract: Realizing that Cooperative Extension is no longer the primary resource of agricultural information for many producers, particularly the horse industry, this study was designed to compare responses from Virginia Cooperative Extension agents and horse industry stakeholders to assess current extension programming methods and evaluate the potential of expanding online information flow. Two online survey instruments were developed and distributed; one to 4-H and agricultural Extension agents in Virginia, and the other to Virginia horse industry stakeholders. Data collected included information resources used by agents and stakeholders; perceived knowledge needs within the Virginia horse industry; programming delivery methods used by agents and stakeholders' preferred method of learning. While only 20% of agents utilized online resources to answer stakeholder questions, over 50% of stakeholders relied on the Internet to find answers. Both agents and stakeholders ranked the same three topics as most important to the Virginia horse industry – economics and business management, nutrition and health, and pasture management. Both agents and stakeholders preferred hands-on educational methods, but agents were far more opposed to using online methods than were stakeholders (28% versus 7%, respectively). Agents have been slow to adopt online resources as a way to educate stakeholders, possibly due to lack of familiarity with online systems. Professional development programs aimed at familiarizing agents with online technology and information delivery to aid in programming efforts may increase the use of online tools in equine extension programming.

Literature Review

For decades, Virginia Cooperative Extension was a major information resource used to solve everyday problems in agriculture and livestock management. In recent years, the paradigm for agricultural knowledge flow has changed, not only in Virginia, but globally (Park, Cho, and Lee, 2007). While Cooperative Extension continues to be a vital and powerful tool for education and integrative connectivity among stakeholders, it is no longer their primary resource of agricultural information (Franz, Piercy, Donaldson, Richard, and Westbrook, 2010a). In the horse industry, veterinarians are often the main resource consulted for answers (Martinson et al., 2006), followed by print media, the Internet, and other horse industry professionals (Anderson, Greene, and Martinson, 2011). Web-based extension programming and online learning environments such as eXtension/HorseQuest are gaining in popularity, and capitalize on ways 21st century audiences seek and utilize instantaneous, research-based information (Park, et al., 2007). However, these resources are underutilized by most agricultural stakeholders, who prefer hands-on learning or face-to-face interaction with experts (Franz, Piercy, Donaldson, Richard, and Westbrook, 2010b). While county extension agents regularly field questions from clientele, there has been no centralized effort to assess the commonwealth's overall information shortfall, discern where or how members of the Virginia horse industry obtain answers to questions, or understand how equestrians prefer to learn. Therefore, the objectives of this project were to (1) determine information resources used by Virginia Cooperative Extension agents to respond to Virginia equine industry stakeholder questions, (2) determine and compare knowledge needs within the horse industry as perceived by agents and stakeholders, and (3) determine and compare methods used by agents to deliver educational programming to stakeholders' preferred method of learning.

Methodology

Two online survey instruments were developed and distributed using Dillman's (2007) technique: one for Extension agents ("agents") and one for Virginia horse industry stakeholders ("stakeholders"). For both surveys, questions on preferred methods of teaching and learning were rated on a 5-point scale from strongly favored to strongly opposed. Topics of interest and perceptions of industry problems were open-ended questions. Data collected from agents included demographics (gender, age, race, etc.); resources used by agents to answer stakeholder questions; perceptions of industry needs and challenges; and preferred method of program delivery to equine audiences. Data collected from stakeholders included demographics; nature of involvement in the horse industry; topics of interest;

perceptions of industry problems; and preferred methods of learning. Stakeholders were also asked to indicate their preferences relative to program length, cost and traveling distance required to attend.

Results

The agent survey was delivered to all 463 Agricultural and 4-H agents in Virginia. Of the 63 responses received, 43 (9%) were complete and used in data analysis. Agent responses to the question of the most pressing current industry challenges revealed a perceived need for additional programming in business management/economics (24.7%), pasture management (22.4%), and nutrition/health care (21.2%). Only 22% of agents indicated they answered stakeholder questions themselves. When not answering questions directly, 46% of agents reported that they directed stakeholders to an academic or extension specialist, with the remainder referring clients to an industry professional. Although 37% had visited eXtension/HorseQuest website at least once, only 6% regularly used it as an information resource. When it came to presenting information to stakeholders, 70% strongly or somewhat favored hands-on teaching methods while only 30% felt the same about online programming. Conversely, 28% somewhat or strongly opposed online methods while none opposed hands-on or lecture.

Of the 706 responses received from stakeholders, 542 (77%) were from Virginia residents. While 55% of respondents stated they used the Internet to find the answers for horse-related questions, only 19% had ever used eXtension/HorseQuest. Stakeholder consensus of issues faced by owning or managing horses in Virginia centered on expenses (19.8%), nutrition/health (18%), and pasture management (15.9%). The majority of stakeholders (35%) indicated they preferred hands-on methods for learning. Only 18% favored online programs; 7% actually opposed online methods. Stakeholders indicated they were willing to travel up to 80 km for seminars and workshops. However, they expected workshops to last longer and were willing to pay more.

Discussion

Extension agents and equine industry stakeholders in Virginia believe the same topics are of interest to the industry, and the preferences for agents' method of delivering programs compliments stakeholders' preference for receiving information. For economic reasons, methods that were used in the past may no longer be feasible, such as hands-on training programs. Attempting to conduct fewer programs with a regional impact is not promising given input from stakeholders – they prefer to travel less than 80 km and are unwilling to pay the higher fees often associated with larger programs. Martinson et al. (2006) found that horse owners preferred having veterinarians and local businesses included in extension programs. With this in mind, collaborating with these groups may increase stakeholder attendance to educational programs. Shifting to completely on-line programming is not the answer when nearly 30% of agents and 7% of stakeholders actually oppose this method. However, incorporating aspects of on-line and distance education into programs by having one or two of the presenters being remote while the rest of a program is face-to-face may be a viable compromise.

References

Anderson, K. P., Greene, E. A., & Martinson, K. (2011). Assessing the impact and usefulness of eXtension horses. *Journal of Equine Veterinary Science*, 31, pp. 345-346.
Dillman, D. (2007) *Mail and internet surveys: The tailored design method.* Hoboken, NJ: John Wiley and Sons, Inc.
Franz, N. K., Piercy, F., Donaldson, J., Richard, R., & Westbrook, J. (2010a). How farmers learn: implications for agricultural educators. *Journal of Rural Social Sciences,* 25(1), pp. 37-59.
Franz, N. K., Piercy, F., Donaldson, J., Westbrook, J., & Richard, R. (2010b). Farmer, agent, and specialist perspectives on preferences for learning among today's farmers. *Journal of Extension*, 48(3). Retrieved September 10, 2011 from http://www.joe.org/joe/2010june/pdf/JOE_v48_3rb1.pdf
Martinson, K., Hathaway, M., Wilson, J., Gilkerson, B., Peterson, P., & Del Vecchio, R. (2006). University of Minnesota horse owner survey: Building an equine extension program. *Journal of Extension*, 44(6). Retrieved on September 10, 2011 from http://www.joe.org/joe/2006december/rb4.php
Park, D. B., Cho, Y. B., Lee, M. (2007). *The Use of an e-Learning System for Agricultural Extension: A Case Study of the Rural Development Administration, Korea.* Journal of Agricultural Extension and Education, 14(4), pp. 273-285.

Examining the Impact of Context on Preservice Teachers' Sense of Teaching Efficacy

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Abstract: Researchers in teacher education have recommended that teaching candidates receive multiple opportunities for systematic experimentation with teaching practices in authentic contexts. Yet, few studies have been conducted examining the related outcomes of such experiences on variables such as teaching efficacy. Acknowledging the importance of such a line of research and the impact of beliefs upon actions, this study was conducted to examine the impact of contextual variations in practicum experiences on the teaching efficacy of candidates enrolled in a teacher preparation program. Using the Teachers' Sense of Efficacy Scale, comparisons were made among groups of teaching candidates who participated in separate, varied experiences within one teacher education program. The results indicated candidates who participated in an intensive, field-based placement experienced the largest growth in overall teaching efficacy and domain-specific efficacy for classroom management, instructional strategies, and student engagement. Implications are discussed as related considerations for teacher education programs as they prepare field and practicum experiences for their candidates.

Literature Review

Experts continue to debate the numerous dimensions that provide the greatest impact on preservice teaching candidates' practices, including the demonstration of content-specific expertise and acquiring dispositions that will enable them to maximize the impact on their students (Hammerness, Darling-Hammond, & Bransford, 2005). In the ongoing debate, one variable that has received a great deal of attention is the amount of time in authentic teaching contexts. Clearly field experiences provide candidates opportunities to apply pedagogical skills and strategies and demonstrate content knowledge learned within authentic teaching situations (Zeichner, 2010). Furthermore, they offer chances to practice teaching behaviors in controlled settings under the guidance of a mentor (Berliner, 1985). However, there are a number of considerations that must occur to maximize the benefits associated with field experiences, including duration, context, opportunities for practice, and guidance. Very recent research examining the impact of differing field-based experiences has been characterized as sparse at best (Shanahan, 2008).

Field experiences can build practical knowledge and impact behaviors, but preservice teachers' beliefs about their teaching abilities, referred to as teaching efficacy, also impact practices. Teaching efficacy represents an important influence on the behaviors of teachers due to its impact on instructional choice, effort, and persistence. Previous research has implicated teacher preparation as an important mechanism for understanding teacher beliefs and their impact on practices and behaviors (Pajares, 1992). As a complex construct, teacher efficacy mediates the relationship between knowledge and action and has been correlated with practices that positively impact student achievement (Ashton, 1984). However, conflicting results from previous investigations examining efficacy and field experiences have created more questions than they have answered (Knoblauch & Hoy, 2008). As a result, researchers have called for studies that investigate features of pathways to teaching that are powerful for preparing teachers (Zeichner & Conklin, 2005) and demonstrating a related effect on efficacy for teaching.

Methodology

The sample for this research was drawn from teaching candidates enrolled in a four-year, undergraduate elementary education program who had achieved admittance to the teaching curriculum. Participants were drawn from three distinct contextual variations of the delivery of a two-course sequence in the program: a "looping" format where the instructor and candidates remained together for two consecutive semesters; an "intense" blocked semester where candidates enrolled in both courses simultaneously with one instructor; and a traditional format where candidates completed the courses in two semesters with different instructors. The Teachers' Sense of Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001) was administered at the beginning of the first course in the sequence and again in the final two weeks of the second course to assess the general efficacy of all participants as well as their efficacy for classroom management, student engagement, and instructional strategies, as measured by the associated subscales.

Data Analysis

Scores for total efficacy and for each of the sub-scales (student engagement, instructional strategies, and classroom management) were computed for each participant for each test administration. Descriptive statistics, including mean and standard deviation, were calculated for each individual question, each of the subscales, and total efficacy score for each administration of the survey. Two analyses of variance (ANOVA), one comparing scores on the initial administration and one for the final administration of the TSES, were performed to investigate differences regarding perceptions of overall teaching efficacy as well as the related domain-specific efficacy as measured by the subscales. Post hoc comparisons were completed in each case using Tukeys HSD.

Results

The initial ANOVA was performed to investigate differences between the scores of the participants using context (looping, blocked, traditional) as the independent variable. The ANOVA indicated statistically significant differences based on group membership at $p < .01$ were present on the total score for the TSES (F = 23.65) and on all subscales: classroom management (F = 14.97), instructional strategies (F = 19.12), and student engagement (F = 18.07). The post hoc analysis using Tukey's HSD revealed the candidates enrolled in the looping section demonstrated higher overall efficacy and higher efficacy on the domain-specific subscales than the comparison groups in the blocked and traditional format. Results for the second ANOVA again revealed significant differences ($p < .01$) were present amongst the groups in overall efficacy (F = 16.89) as well as domain-specific efficacy for classroom management (F = 9.14), instructional strategies (F = 23.97), and student engagement (F = 10.75). Tukey's HSD revealed that the traditional program was significantly lower than both the looping and blocked groups.

Discussion

Candidates enrolled in the blocked courses were provided with opportunities to successfully implement the instructional and management strategies described in coursework in the classroom immediately as they moved seamlessly between the two. The continuity between program purposes and field experiences provided coherence (Hammerness et al., 2005), which specifically enabled candidates in the blocked courses to apply theoretical constructs to everyday classroom practices, something that has been theorized as lacking in many teacher education programs (Moore, 2003). As a result, the candidates in the blocked group experienced dramatic improvements in efficacy to instruct, manage, and engage students. This success was likely enhanced through the careful attention that was directed at selecting the practicum site that ensured the candidates viewed competent and skillful teachers, and also had direct access to a university supervisor and peers at several points during the day. This research provides suggestions for how to more effectively organize teacher educator programs in ways that support the long-term development of knowledge, skills, and dispositions needed to be effective teachers.

References

Ashton, P. (1984). Teacher efficacy: A motivational paradigm for effective teacher education. *Journal of Teacher Education, 35*(5), 28–32.

Berliner, D. (1985). Laboratory settings and the study of teacher education. *Journal of Teacher Education, 36*, 2-8.

Hammerness, K., Darling-Hammond, L., & Bransford, J. (2005). How teachers learn and develop. *Preparing teachers for a changing world* (pp. 358-389). San Francisco: Jossey-Bass.

Knoblauch, D., & Hoy, A. (2008). "Maybe I can teach those kids." The influence of contextual factors on student teachers' efficacy beliefs. *Teaching and Teacher Education, 24*, 166-179.

Pajares, F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research, 62*, 307-332.

Shanahan, C. H. (2008). Essential fieldwork for the preparation of teachers of reading for urban settings. In L. Wilkinson, C., Morrow, L.M., & Chou, V. (Eds.), *Improving literacy achievement in urban schools: Critical elements in teacher preparation*. Newark, DE: International Reading Association.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing and elusive construct. *Teaching and Teacher Education, 17*, 783-805.

Zeichner, K. (2010). Rethinking the connections between campus courses and field experiences in college- and university-based teacher education. *Journal of Teacher Education, 61*, 89-99.

Zeichner, K., & Conklin, H. (2005). Teacher education programs. *Studying Teacher Education* (pp. 645-735).

Factors Predicting Verbal Participation in the Lebanese Classroom

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Abstract: Motivation and engagement are two essential determinants of academic success in higher education. The purpose of this questionnaire survey of 699 undergraduate Lebanese students was to provide for a better understanding of the links between the level of verbal participation (VP) of students and a set of socio-demographic, contextual, environmental, and motivational variables. It also aimed to predict engagement (VP) using multiple correspondence analysis (MCA) and multinomial logistic regression (MLR). Results show that self-efficacy, instructors' gender and students' age exert the strongest influence on VP. This, in turn, implies that instructors can only exercise partial control over students' engagement and motivation while influencing their self-efficacy beliefs towards the course. Further studies using different methods of data collection and analysis strategies should investigate more closely how interaction with students, the nature of learning activities and feedback could enhance motivation and engagement in a classroom setting.

Problem and Context

Motivation and engagement are two central elements in the understanding of academic success in higher education (CSE, 2000). Students' perceptions are determining factors of engagement and perseverance since they are at the heart of the motivational dynamics (Archambault & Chouinard, 2009). This, in fact, calls out to the university professors' skills to take students' perceptions into account while designing and implementing learning situations. Verbal interactions constitute one of the more pregnant aspects of engagement. However, verbal participation (VP) takes up only a small proportion of class time (Bradley and Graham, 2000). This study is based on a multifactorial socio-cognitive model postulating that VP has its source in the interaction between students' perceptions and the different significant features of the context in which learning is taking place (Kozanitis, 2005). This research intends to: 1. better understand the links between students' VP and socio-demographic, contextual, environmental, and motivational variables; 2. identify the best predictors of VP in Lebanese university students.

Methods

Students (n=699) registered in 49 training activities conducted by 49 Lebanese university professors (15 women, 34 men) of five different programs (Business, Engineering, Management, Marketing, Physical Education) completed a validated questionnaire (Kozanitis, 2005) which included a socio-demographic section and eight subscales. The Cronback's alpha values varied from 0.58 to 0.88. Perceptions were measured with the assistance of a scale going from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Data analysis was carried out using Spearman's correlation, multiple correspondence analysis (MCA) (Escofier and Pagès, 1998) and multinomial logistic regression (MLR) (Norusis, 2007) with the help of statistical softwares such as SPSS (version 15) and XLSTAT (2009).

Results

Correlational analysis with Spearman's coefficient showed that self-efficacy, task importance and avoidance goal were significantly related to VP whereas students' age was not (Table 1).

Table 1. Correlations between verbal participation, motivational components, interaction style and students' age

	Mastery goal	Perfor-mance goal	Avoidance goal	Self-efficacy	Control	Interest	Reactions	Openness	Age
VP	0,326	0,238	-0,406	0,568	0,281	0,530	0,326	0,326	0,026
	p = 0,00	p = 0,00	p = 0,00	p = 0,00	p = 0,00	p = 0,00	p = 0,00	p = 0,00	p = 0,00

Four main dimensions come out of the MCA. They account for 70.202 % of total factorial solution inertia. As expected, self-efficacy is best represented on the first and the third dimensions while teachers' gender and, surprisingly, students' age are best represented on the second and fourth dimensions respectively (Table 2).

Table 2. Percentage of inertia for each of the four main dimensions and quality of the representation of the three most prominent variables for each dimension

	Dimension 1 (Inertia = 47.005 %)	Dimension 2 (Inertia = 9.936 %)	Dimension 3 (Inertia = 7.924 %)	Dimension 4 (Inertia = 5.337 %)
Self efficacy	$Cos^2 = 0,229$	-----	$Cos^2 = 0,118$	-----
Students' gender	$Cos^2 = 0,227$	-----	-----	-----
Interest	$Cos^2 = 0,223$	-----	-----	-----
Control	------	-----	-----	-----
Teachers' gender	-----	$Cos^2 = 0,298$	$Cos^2 = 0,105$	-----
Class size	-----	$Cos^2 = 0,168$	$Cos^2 = 0,103$	-----
Program	-----	$Cos^2 = 0,124$	-----	$Cos^2 = 0,056$
Students' age	-----	-----	-----	$Cos^2 = 0,135$
Session	-----	-----	-----	$Cos^2 = 0,067$

ACM also shows that a very low to mitigated VP gathers perceptions concerning male teachers and motivation which are *very unfavourable* or *unfavourable*. On the other hand, *favourable* to *very favourable* VP further corresponds to female professors as well as a higher degree of motivation and success. According to MLR analysis, the teacher's gender effect is significant only in the low engagement (VP) stratum (scores < 2.75) where male teachers are perceived to discourage PV more than female teachers. Older students (22 years old and over) report significantly higher levels of VP than younger students (less than 22 years old). Students that reported strong self-efficacy beliefs declared higher engagement during classroom activities. The difference in reported VP levels between those who scored very low on the self-efficacy subscale and those who scored very high is striking: the risk for the formers to declare a very low VP is 2123.5% higher than that of the latter's!

Discussion and Conclusion

This survey offers a different look on students' engagement seen from the VP angle. It shows that the Lebanese students' VP depends upon three main variables: self-efficacy, teachers' gender, and students' age. This differs from that published by Kozanitis & Chouinard (2008) who found no correlation between self-efficacy and VP and an indirect relation between students' age and VP mediated by learning goals. They also differ from the results obtained by Desbiens et al. (submitted) who found that learning goals, group size, and perception of control were the three variables influencing VP. Variables such as age, gender, the degree of experience of learners as well as group size are elements that can hardly be controlled by a teacher. Per contra, learning goals and self-efficacy are perceptions that can be influenced by the way teachers interact with students, give directions, provide learning activities, manage learning task difficulty, set learning goals, and provide feedback through regular assessments (Jones, 2009). Coming papers combining recurrent observations in classrooms, interviews, and questionnaires may draw a richer picture of the different factors influencing engagement during learning activities in university.

References

Bradley, S. & Graham, S. (2000). The effect of educational ethos and campus involvement on self-reported college outcomes for traditional and non-traditional undergraduates. *J. of College Stud. Dev., 41*(5), 488-502.

Conseil Supérieur de l'Éducation. (2000). *Réussir un projet d'études universitaire : des conditions à réunir*. Avis au ministre de l'éducation. Qc : Gouvernement du Québec.

Desbiens, J.-F. et al. (submitted). Facteurs de l'engagement en classe d'étudiants en activité physique. *Revue internationale de l'enseignement supérieur.*

Escofier, B. & Pagès, J. (1998). *Analyses factorielles simples et multiples* (3ᵉ éd.). Paris : Dunod.

Jones, B. D., (2009). Motivating Students to Engage in Learning: The MUSIC Model of Academic Motivation. *IJTLHE, 21*(2), 272-285.

Kozanitis, A. (2005). *Une analyse exploratoire d'un modèle prédictif de la participation verbale en classe universitaire.* Thèse de doctorat non publiée. Faculté des études supérieures, Université de Montréal.

Kozanitis, A. & Chouinard, R. (2008). Une analyse exploratoire d'un modèle prédictif de la participation verbale en classe universitaire. *Revue des sciences de l'éducation, 34*(3), 711-728.

Norusis, M. J. (2007). *SPSS 15.0 Adv. statistical procedures companion*. Upper Saddle River (N.J.) : Prentice Hall.

Investigating the Long-Term Impact of a Graduate Student Future Faculty Program

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Abstract: Increasingly, doctoral institutions are responding to calls to provide more robust professional development for students who aspire to professorial positions upon graduation. Tomorrow's Professor Today, a university-wide professional development program for current graduate students who intend to join the professoriate, started in 2005. Initial studies suggest that the program prepares students for a variety of faculty competencies. This study reports on a preliminary analysis of a second stage of qualitative research. Findings indicate that program alumni report using an array of competencies acquired during TPT in many facets of their new academic careers.

Introduction and Background

The University of Virginia Teaching Resource Center's Tomorrow's Professor Today (TPT) program is a university-wide professional development program designed to facilitate the transition from graduate student to academic professional. Begun in 2005, in response to the recommendations of a number of national reform initiatives, including the National Doctoral Program Survey, Carnegie Initiative on the Doctorate, Re-envisioning the Ph.D., and the Preparing Future Faculty Program, TPT focuses on improving preparedness in three key areas—teaching, general professional development, and adjustment to a university career.

During the first five years (2005-2010), 155 graduate students from 4 schools and 32 departments participated in TPT. Initial studies of the program's impact examined entrance, mid-program, and exit surveys completed by program participants. The surveys collected demographic information, career aspirations, and perceptual data about levels of preparedness in three key competency areas—twenty total competencies—corresponding to typical faculty roles: teaching, research, and service. The surveys clearly documented that the program improves participants' preparedness for academic positions in all competencies measured. Pre-program surveys revealed that participants generally feel unprepared or somewhat prepared for competencies in areas other than research–related ones, for which they feel prepared. This mirrors the data for the University's general graduate student population. Exit surveys showed, however, that TPT participants perceived significant gains in these competencies by program's end. When asked to gauge their level of preparedness for the academic job market, nearly 60% of TPT participants felt very prepared (40% somewhat prepared), while only 9% of non-TPT participants interested in academic careers felt very prepared (39% somewhat prepared).

Method

In the spring of 2011, we extended the study to 20 interview participants who had obtained faculty (n = 14) and postdoctoral (n = 6) positions. We sought participants' perceptions on the competencies they gained from TPT program participation that they now use in their current position. With participants' permission, we taped and transcribed the interviews. Resulting narrative data were coded according to the three key competency areas in which the TPT program was designed to increase preparedness — teaching, general professional development, and adjustment to a university career.

Data Analysis and Results

Teaching: As anticipated, given the TPT programmatic emphasis, the competency area of *teaching* was well represented in participants' narratives. Those participants who are now classroom instructors reported that mastering classroom instruction *before* they began their current position was invaluable. Representative comments included, "I use the skills from the [teaching] workshops all the time" (Biology Faculty); "For me, it [TPT participation] was the only teaching preparation I had for my role…the knowledge and skills related to teaching that I gained from the workshops…were extremely beneficial" (Nursing Faculty); "The workshops were fantastic as was the classroom teaching requirement. By doing the classroom teaching is where I figured out that I probably wanted to be a professor" (Chemical Engineering Faculty); "The conversations [about teaching] I was able to have [in the TPT

program] are now conversations I can have with peers here among the faculty" (Psychology Faculty). Participants employed as postdoctoral fellows also reported applying teaching competencies in their current position. As one fellow commented, "I will be working with faculty [outside my field]. TPT helped me understand those broader issues with teaching across the board."

General Professional Development: Prior involvement with TPT encouraged many participants to seek professional development opportunities in their new positions. As one biology professor noted: "The best thing I got [from TPT] was to talk to people about teaching and go to workshops…and that's something I've definitely done. I've gone to at least six teaching workshops at [my new institution] this year." Additionally, for some, prior TPT participation facilitated current research in teaching. As a participant who both taught and worked at a faculty development center observed, "It is hard for me to do biology research right now, so I am doing scholarship of teaching and learning. The TPT program made me think broader." One participant even found a link between her current research and her prior TPT experience, saying, "Going through the TPT program makes me think more about the audience of a [research] paper. I think of the broader community. How can I communicate this in a successful way?"

Adjustment to University Career: Participants reported that their TPT experience helped them adjust to their new career in several ways. TPT encouraged interaction among diverse campus constituents, and this experience proved helpful. As a postdoctoral fellow reported, "All the interacting with all the different types of people through TPT helped me feel more comfortable interacting with other people in my new job." A Spanish professor relayed, "[TPT] definitely helped me with supervisors, knowing what I should ask my chair, for example." TPT participation also facilitated adjustment by providing a realistic job preview. As a nursing faculty commented, "You take an academic position and you think, 'okay, I got it. Research, teaching, and scholarship.' But then you have ten advisors, and internal committees, and [even more]. The program really allowed me to further understand that the role is much more than those three pieces."

Conclusion

From the results, we were able to confirm long term positive benefits of the program, to identify which aspects of the program seem to best prepare graduate students for faculty and post-doctoral positions, and to target areas of the program that participants identified as needing more emphasis. Many aspects of this program can be replicable at other institutions.

Leader Emergence in Small Teams

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Abstract: The use of teams can be an effective teaching and learning strategy that enhances many different student skills. Additionally, students' ability to function effectively on a team or the ability to lead a team is increasingly important for success in the workplace. Typically, a team leader plays an important role in team communications, meeting facilitation, decision making, and goal setting and attainment. Not all teams have a leader, while others have a specific leader or shared leadership roles. Effective team leaders can enhance the productivity of the team and meeting of the team goals. Participants of a leadership class participated in a survey asking questions of what traits do they look for in a leader, do they feel their team has a leader, and how did the specific leader emerge. Student responses were consistent with leadership theory on the three individual questions. Practical implications for instructors using teams as a teaching and learning strategy include team productivity is enhanced with a team leader; however, not all team leaders are capable of performing the role in a satisfactory manner.

Literature Review

The concept of working in teams or groups is common in today's college classroom as a learning strategy to better prepare students for the demands of the workplace that requires graduates with experiences in both leadership and the ability to function effectively on teams (Coers, Lorensen, & Andersen, 2009). Additionally, there are many other pedagogical benefits of teams including development of interpersonal skills and students learn from each other and have the opportunity to hear and discuss different perspectives on the same topics (Coers et al., 2009). Another advantage of teams includes "teams are capable of solving problems that are beyond the capability of even the most talented members" (Michaelsen, Knight, & Fink, 2004). While there are many benefits to team work, there are also certain problems, such as the lack of leadership associated with the team learning (Deeter-Schmelz, Kennedy, & Ramsey, 2002). Levi (2011) states "teams rarely exist without leaders" (p. 179); however, the scholar also notes not all teams have leaders. Team leaders are often assigned or selected for the role by others in the team, while other teams have leaders that emerge through their interactions with other team members. Levi (2011) states that a team leader is not required for success of the team; however, a good leader enhances team performance by "establishing a clear and engaging direction for the team" and creates a "situation that enables team success" (p. 177). Other key tasks of a leader include "coordinating the work tasks within the team, motivating members toward a common goal, and managing the inevitable conflicts that arise among productive people (Evers, Rush, & Bedrow, 1998, p. 297). Unfortunately, Levi also notes not all leaders that emerge are good leaders or qualified to lead the team. Good leaders often possess certain traits their followers look for and these skills and can be learned and enhanced in the classroom (Evers, et al., 1998). Northouse (2007) states there is no one definitive set of traits required of an effective leader; however, traits most often noted as required include intelligence, self-confidence, determination, integrity and sociability. Other commonly noted traits include drive, honesty, knowledge of topic, and flexibility. Therefore, if the lack of leadership is one of the problems associated with team work and team success, a better understanding of how leaders emerge in small teams is needed so that strategies to enhance leader emergence and development can be developed and implemented.

Methodology

Participants in this study were undergraduate students enrolled in a team leadership class as a requirement for the Leadership and Social Change minor at Virginia Tech during the spring 2011 term. Learning outcomes of the class included creating and leading effective teams in a service learning project. Participants in the class represented multiple colleges and departments from across the campus. Early in the term students were randomly assigned to eight different teams with teams ranging in size from five to eight students. Students were asked to voluntarily participate in the study by completing a researcher developed questionnaire. An on-line survey was administered to all 50 students in the class with 35 respondents, or a 70% response rate. Based on the nature of the study and questions, the survey was administered late in the term and close to the completion of the team service learning project. The self-administered survey consisted of four open-ended questions eliciting student responses on their perceptions on the top three characteristics or traits of an effective leaders, determination if a leader has emerged in the team and if so who, the process how the team leader emerged, and their experiences with their team leader in this

class as compared to similar experiences. Responses were systematically analyzed through qualitative coding and analysis process. For the one question asking the name of the student that has emerged as a leader, simple tabulations were completed

Results

Results of student responses to question one "Thinking about team leaders in general, what are the top three characteristics or traits you look for in a good leader?" The top seven responses included work ethic as the top characteristic, followed by openness to others ideas, strong communications skills, honesty / trust, personal responsibility, organization, and respect for others. Question two asked participants to name the individual who has emerged as the team leader with four of the eight teams identifying a single leader, two teams had split leaders between two different individuals, and finally two teams noted all team members acted as the leader depending on the situation. Question three asked students to describe how the team leader emerged or how the leadership roles were assigned. Responses included eight individuals noting the team leader emerged as the individual 'stepped up' to the task; seven respondents noted the leader emerged due to strong organization skills; six respondents noted the leader emerged due to previous experience; four respondents stated the leader emerged through their strong communications skills; and finally four respondents noted the leader emerged with strong connections to others outside the classroom that would be helpful in finding and completing the class required service learning project.

Discussion

The use of teams is an effective teaching and learning strategy with many positive learning outcomes. Team effectiveness in attaining class goals is enhanced by a team leader that possesses many of the basic traits required of leaders. When students were asked what traits or characteristics they looked for in a leader of their team, their responses were consistent with current leadership theory on traits (Northouse, 2007). When students were asked if their team had a leader, responses varied from a single leader, shared leadership between two students, and finally, shared leadership between all students on the team based on the situation. These variations in emergent leadership are consistent with Levi (2011) noting teams are encouraged to have a leader, not all teams choose to have a leader. Implications are numerous for instructors using or thinking of using teaching strategies with teams. First, instructors must introduce the concept and strengths of team learning allowing students a better understanding of why this specific strategy is used. Instructors should encourage teams to agree on a plan for establishing a team leader, whether a single leader, shared, or rotated, as there are many benefits to having a leader including improved team organization, improved facilitation, and improved goal setting and goal attainment. Instructors should incorporate activities into the learning environment that foster the growth of the individual skills needed for effective leadership allowing students opportunities to practice their skills development. Finally, instructors need to be cautioned that the specific leader that emerges or is assigned may not always have the required skills and traits to be an effective team leader.

References

Coers, N., Lorensen, M., & Anderson, J, (2009). Case study: Student perceptions of groups & teams in leadership education. *Journal of Leadership Education, 8*(1), 93-110.

Deeter-Schmelz, D., Kennedy, K., & Ramsey, R. (2002). Enriching our understanding of student team effectiveness. *Journal of Marketing Education, 24*(2), 114-124.

Evers, F., Rush, J., & Berdrow, I. (1998). *The bases of competence: Skills for lifelong learning and employability*. San Francisco, CA: Jossey-Bass, Inc.

Levi, D., (2011). *Group dynamics for teams.* Thousand Oaks, CA: Sage Publications, Inc.

Michaelsen, L., Bauman Knight, A., & Fink, D. (2004). *Team-based learning: A transformative use of small groups in college teaching.* Sterling, VA: Stylus Printing, LLC.

Northouse, P. (2007). *Leadership: "Theory and practice* (5th ed.). Thousand Oaks, CA: Sage Publications, Inc.

Learning to See the Infinite: Teaching and Measuring Visual Literacy

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Abstract: Visual literacy, defined as the ability to interpret, negotiate, and make meaning from information presented in an image, was a stated learning objective for the fall 2009 iteration of a 1st-year seminar course. To help students develop visual literacy skills, they received formal instruction throughout the semester and completed a series of carefully designed learning activities. The effects of these interventions were measured using a pre-/post-semester methodology where students were asked to look at two different—but stylistically similar—paintings and write a response to the following two questions: What do you see? and what do you think it means? Students' responses were analyzed using Toulmin's argument model. After instructional interventions, students made more basic and advanced observations, offered more supporting visual evidence for their claims, and made stronger connections between their claims and the visual evidence. These results suggest that the classroom interventions significantly improved students' ability to make necessary and appropriate observations in images and to develop stronger claims supported by their observations.

Background

Visual literacy was first coined in 1969 by John Debes (Debes, 1969). Though the definition is still debated, visual literacy essentially refers to the ability to interpret, negotiate, and make meaning from information presented in an image (Avgerinou & Ericson, 1997). Little et al. have argued that "visual literacy…is a critical skill for twenty-first-century students and ought to be a central component of liberal education" (Little, Felten & Berry, 2010) And, they suggest that academic disciplines outside those commonly affiliated with visual literacy (e.g. art history, media studies) and instructors of 1st-year general education through capstone courses help students think critically about the images they encounter. This intentional and concerted focus is even more important given today's image-rich, image-saturated culture.

The current study—embedded in the highly interdisciplinary, 1st-year seminar course known as *Falling from Infinity*—explores the impact formal visual literacy instruction has on students' visual literacy skills. The course was systematically designed to include visual literacy as one of the explicit learning objectives and was taught during the 2009 fall semester.

Methodology

To help students develop visual literacy skills, they received formal instruction throughout the semester and completed a series of carefully designed learning activities. The effects of these interventions were measured using a pre-/post-semester methodology where students (n=16) were asked to look at two different—but stylistically similar—paintings and write a response to the following two questions: What do you see? and what do you think it means? The paintings were Salvador Dali's "The Persistence of Memory" and "The Disintegration of the Persistence of Memory."

Students' responses were analyzed using Toulmin's argument model (Toulmin, 1969), with particular focus on claim, supporting evidence, and warrant (i.e. the inferences or assumptions taken for granted by the writer that connect the claim and the supporting evidence). Supporting evidence was defined as the observations—basic and advanced—that students made. A basic observation described an object or feature of the painting without significant qualifiers. An advanced observation described an object or feature of the painting beyond merely identifying it, such as the position of the object/feature relative to others or its location relative to the painting (e.g. foreground/background); the texture of objects or the texture of the painting itself; the contrast or juxtaposition of objects or features; the source and/or direction of light; a minute, easily overlooked detail of the piece; or, an observation the viewer made about her own experience viewing the painting (e.g. "I looked at it in a counterclockwise manner"). The number and quality of observations, the number and strength of claims, and strengths of the warrants were analyzed.

Results and Discussion

Changes in students' ability to make basic and advanced observations and support a claim with those observations are shown in figures 1-4. At the start of the semester, before the instructional interventions, the median values for the number of basic observations and advanced observations made were 13.0 (range = 0-33) and 2.0 (range = 0-7), respectively. Students provided 2.5 pieces of evidence for their best-supported claim (range = 0-6). The strength of their warrant was generally weak to moderate. Near the end of the semester, following the instructional interventions, the median values for the number of basic observations and advanced observations made were 26.0 (range = 13-68) and 3.0 (range = 2-14), respectively. Students provided 8.0 pieces of visual evidence for their best-supported claim (range = 3-40). The strength of their warrant was generally moderate to strong.
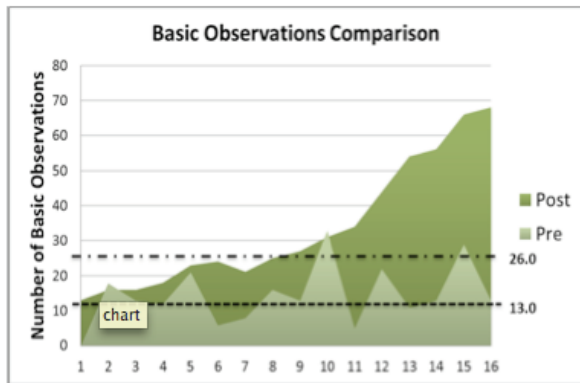
Figure 1. Basic observations made for pre- and post-semester assessments. The dash-dash line indicates the pre-semester median; dash-dot line indicates the post-semester.
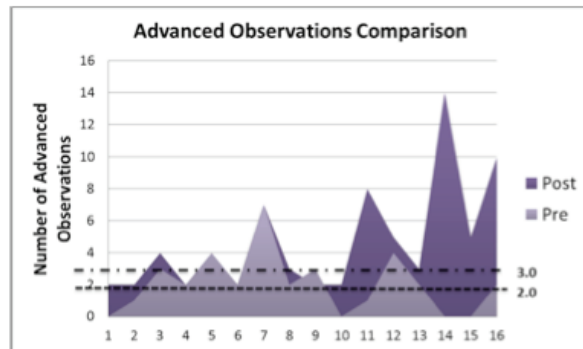
Figure 2. Advanced observations made for pre- and post-semester assessments. The dash-dash line indicates the pre-semester median; dash-dot line indicates the post-semester.
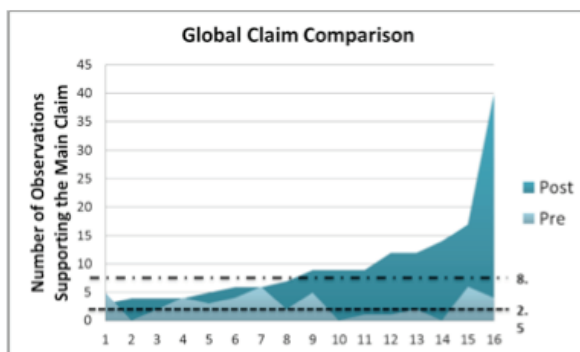
Figure 3. Number of observations supporting the primary claim of the pre- and post-semester assessments. The dash-dash line indicates the pre-semester median; dash-dot line indicates the post-semester.
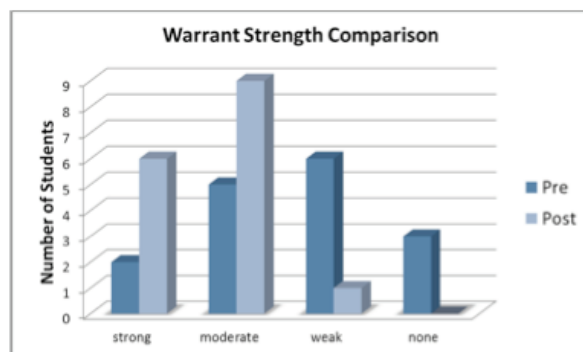
Figure 4. Strength of the warrant for students' primary claim for the pre- and post-semester assessments.

These results suggest that the classroom interventions significantly improved students' ability to make necessary and appropriate observations in images and to develop stronger claims supported by their observations.

References

Avgerinou, M., & Ericson, J. (1997). A review of the concept of visual literacy. *British Journal of Education Technology*, 28(40), 280-291.
Debes, J. (1969). The loom of visual literacy: An overview. *Audiovisual Instruction*, 14(8), 25-27.
Little, D., Felten, P., & Berry, C. (2010). Liberal Education in a Visual World. *Liberal Education*, 96(2), 44-49.
Toulmin, S. (1969). *The Uses of Argument*, Cambridge, England: Cambridge University Press.

Mass Media Created Stereotypes: Influence on Student Learning

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Abstract: The purpose of this qualitative study is to examine the case of Saudi students at Riversdale State University (a pseudonym) with regard to the influence of the stereotype threat (McGlone & Aronson, 2007) created by TV and newspaper coverage when presenting images of Saudi Arabia, the Arab world, or the Muslim world. The study also aims at revealing the effects that the perception of the aforementioned stereotype can have on the academic success, social integration, and persistence of Saudi students. The research follows the qualitative approach to reveal the human aspects of the case and the degree of intensity that these stereotypes may create. Findings revealed essential information especially with the influx of Saudi students into the United States since 2006. They explained a part of the multifaceted situation specific to the case of Saudi students and showed the importance of awareness among students and college administrators of their situation. The findings also highlighted the importance of the active role of the Saudi students responding to these stereotypes.

Theoretical and Conceptual Framework

Exposed to new values, attitudes, and behavior patterns once in the United States, international students face a culture shock that is usually associated with stress, anxiety, feelings of powerlessness, perceptions of rejection, and consequences of isolation (Rahman & Rollock, 2004). Different cultural barriers constitute the most challenging obstacle towards a comprehensive learning experience for these students. Among these are negative stereotypes and inaccurate portrayals of one's culture which are forms of neo-racism (Lee & Rice, 2007). The U.S. media coverage of world news always has an influence on the American nationals' perceptions of the countries handled. Foreign students are likely to feel frustrated after exposure to U.S. media when handling international news that is related to their countries of origin (Viswanath, 1988). Moreover, mass media can influence impressions of other groups significantly creating and promoting stereotypes when direct information is limited (Fujioka, 1999).

Since April 2006, thousands of students from Saudi Arabia are enrolling on college campuses across the United States under a new rigorous Saudi government scholarship exchange program (Open Doors, 2008). Originating in a society that has relatively different norms and values from those of the United States, Saudi students experience difficulties in their adaptation, acculturation, and satisfaction with their college experience when studying at American colleges and universities (Thani, 1987). A part of these barriers is the stereotypes created by the mass media about Saudi Arabia, Islam, or Arabs. These stereotypes influence American students' perceptions about Saudi students and consequently are reflected in the way they interact with them. They also influence Saudi students and direct their reactions to comments or questions during casual conversations or class discussions (Viswanath, 1988).

Methodology

To reveal the influence of stereotype on Saudi students as a result of depictions of the Muslim World, the Arab World, and Saudi Arabia in the American mass media, the study is an endeavor to answer the research question, how Saudi students describe the impact of the stereotypes created by the mass media on them while pursuing their university degrees at Riversdale State University (RSU). This study followed a qualitative approach utilizing observations, document reviews and semi-structured face to face interviews as the main data source. Selection of participants was based on nominations from college professors who taught Saudi students and university administrators who are involved in programming for international students. The participants included two male students and a female student. First was Malik, a 20 years old male junior majoring in educational technology and accompanied. The second participant was Waseela, a 20 years old veiled female and information technology freshman. Third was Akram, 28 years old male business administration sophomore. The interviews rotated around three main areas: portrayals of Saudi Arabia on TV and newspaper; the influence of these portrayals on the feelings of the research participants; and what they do or think may be the solutions to respond to these negative portrayals. Interview data were transcribed and emailed back to participants for checking. Later, the data were analyzed using Axial coding (Lindlof & Taylor, 2002) under a list of emergent themes to be able to solidify findings. Member checking was utilized by involving another researcher in the study to verify the objectivity of data analysis.

Findings

Participants' reflections and responses about various kinds of stereotypes created by TV and internet news channels about Saudi Arabia explained different forms of the stereotypes they are facing (Fujioka, 1999). Depiction of Saudi social justice issues was the most disturbing to participants when portrayed on American mass media. Offending Stereotypes included: 1) claimed Saudi discriminatory behaviors against women, 2) claims of injustices and unfair laws effective in Saudi Arabia, and 3) neglecting the cultural achievements of Saudi Arabia as a modernized country. The interviews also revealed the Saudi students' feelings created by these stereotypes as ranging from passive depression to rage and anger (Lee & Rice, 2007). Saudi participants expressed the stress these stereotypes create and the pressure they suffer because of their roles as Saudi students at the university (Viswanath, 1988). Some also expressed how the stereotype threat becomes a problem after an incident appears on TV. Participants' ideas about responding to the challenge of American media created stereotype of Saudi Arabia at RSU offered some insightful applicable ideas. They also explained some of their own initiatives that other Saudi students may follow to deal with these stereotypes. The participants affirmed their active roles in explaining the contextual situation of these stereotypes to their American classmates. They also encouraged presenting about Saudi Arabia in awareness raising sessions that explain to the American students the Saudi point of view that may negate or correct these stereotypes. They also suggested being more proactive in contacting TV channels and internet news channels.

Discussion

The present study had three limitations that restricted its findings: 1) the small sample size of the participants limited the degree of generalization of the findings, 2) timing of the study, in the middle of an era of increased political and military conflicts between America and the Middle East, may have had its influence on the case, and 3) the qualitative approach is very specific to the study participants and cannot be utilized to speak about the whole group of Saudi students (Gall et al., 2005). Future studies may target a larger sample size of Saudi students to produce results that are more generalizable. A quantitative approach may be a suitable technique to study the characteristics of a larger number of Saudi students. A collaborative multi institutional study would reveal valuable findings about the reactions of Saudi students to stereotypes presented on TV and newspapers about Saudi Arabia.

References

Fujioka, Y. (1999). Television portrayals and African-American stereotypes: Examination of television effects when direct contact is lacking. *Journalism and Mass Communication Quarterly, 76*(1), 52-75.

Gall, J. P., Gall, M. D., & Borg, W. R. (2005). *Applying educational research: A practical guide* (5th ed.). San Fransisco, CA: Pearson.

Lee, J., & Rice, C. (2007). Welcome to America? International student perceptions of discrimination. *Higher Education, 53*(3), 381-409.

Lindlof, T. R., & Taylor, B. C. (2002). *Qualitative Communication Research Methods* (2nd ed.). Thousand Oaks, CA: Sage.

McGlone, M. S., & Aronson, J. (2007). Forewarning and forearming stereotype-threatened students. *Communication Education, 56*(2), 119-133.

Open Doors. (2008). Leading places of origin. Open Doors. Retrieved September 7, 2009, from http://opendoors.iienetwork.org/?p=131534

Rahman, O., & Rollock, D. (2004). Acculturation, competence, and mental health among South Asian students in the United States. *Journal of Multicultural Counseling & Development, 32*(3), 130-142.

Thani, H. M. A. (1987). Level of integration into academic and social system of college and the rate of Saudi student attrition in American universities. Ph.D. dissertation, University of Southern California, United States -- California. Retrieved April 28, 2008, from Dissertations & Theses: A&I database. (Publication No. AAT 0560284).

Viswanath, K. (1988). International news in U.S. media: Perceptions of foreign students. *Journalism Quarterly, 65*(4), 952-959.

Millennial's Motivation: Theoretical Observations, Empirical Insights, and Implications for Pedagogy

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Abstract: A growing number of publications describe the characteristics of the "Millennial Generation" – individuals born between 1982 and 2002 – based upon observations of individuals working within academia. The present study is an empirical investigation of seven hypotheses suggested by that literature. The hypotheses were tested using responses to the Academic Motivations Inventory (AMI) from two archival data sets ($n = 333$ and $n = 186$). A series of a Chi-Square analyses indicated that AMI subscale scores were not equally distributed. Subsequent analysis considered the degree to which the distributions were consistent with the hypothesized patterns, providing support for three hypotheses and mixed results for a fourth hypothesis. The remaining hypotheses were not supported. Our results suggest that the theoretical literature may offer college educators important food-for-thought, but should not be considered the definitive guide to college students. Collectively, these findings have implications for teaching philosophy and pedagogy.

Literature Review

In recent years a growing number of publications have focused on the characteristics of the "Millennial Generation" – individuals born between 1982 and 2002. A bulk of the work represents the observations of individuals working within academia and is based upon the premise that Millennials possess unique traits which affect their perceptions of and behaviors in educational settings. The present study represents an empirical investigation of that premise, utilizing data regarding students' academic motivations to test seven hypotheses suggested by the literature.

A number of publications assert that Millennials have spent a large part of their lives living, playing, and working with others. As a result, they prefer collaborative work, informal interaction, and harmony within the classroom setting whereas previous generations preferred autonomy, independence, and competition (Sax, Lindholm, Astin, Korn, & Mahoney, 2002). At the same time, actions and attitudes demonstrated by Millennials indicate they prefer to have the information presented to them in a cut and dry format rather than having to think critically about the information (Coates, 2007; Price, 2009; Murray, 1997). This aversion to subjective content and processes is also associated with a perspective which views education as a consumer commodity; they are paying for it and want to know exactly how they can benefit from it and use it in the real world (Novotney, 2010).

Theoretical discussions of Millennial students also highlight factors related to their growth and development. Between the constant praise by their parents and the self-esteem boosting programs promoted by schools across the country, these students arrive at college with a heightened sense of self-confidence and belief in themselves which leads to their tendency to set lofty goals (Raines, 2002; Georgia Institute of Technology, 2002). The emphasis on positive self-esteem and sense of achievement is also reflected in a high level of confidence. That confidence may, however, create the potential for disappointment (Georgia Institute of Technology, 2002). For example, Millennial students may not view a B-average as a mark of success (Coates, 2007).

Collectively, these observations have a number of implications for student motivation and for teaching practice. We tested seven hypotheses related to those implications.

Methodology

The hypotheses were tested using responses to the Academic Motivations Inventory (AMI) from two archival data sets – one from Spring 2009 ($n = 333$) and one from Fall 2010 ($n = 186$), both convenience samples. Participants in both samples ranged from 18 to 36 years of age (SP09 $M = 19.8$, $SD = 1.22$, FA10 $M = 19.3$, $SD = 1.43$) and were primarily female (SP09 $n = 246$, 73.4%, FA10 $n = 117$, 62.2%). The AMI includes 16 subscales designed to measure the factors which influence the degree to which students engaged with curricular activities (Moen & Doyle, 1977). Seven of the 16 subscales were utilized to test the present hypotheses.

Results

A series of a Chi-Square "Goodness of Fit" analyses considered whether the scores on the AMI subscales were equally distributed and provided a preliminary test of the hypotheses. All analyses were significant at the $p < .001$ level, indicating that scores were not equally distributed across the response options. Subsequent analysis considered the degree to which the distributions were consistent with hypothesized patterns. Table 1 includes the distribution of responses. The distributions are consistent with hypotheses related to Achieving Motives, Competing Motives, and Withdrawing Motives. The distributions for Debilitating Anxiety, Discouraged about School, and Influencing Motives are not consistent with the hypothesized patterns. Economic Orientation represents mixed results across the two samples.

Table 1. Distribution of Responses on AMI Subscales

	Fall 2010					Spring 2009				
	Not at all	A little	Moderately	Quite	Extremely	Not at all	A little	Moderately	Quite	Extremely
*Achieving Motives	1.8%	8.9%	35.5%	30.8%	23.1%	1.8%	9.1%	37.3%	33.9%	17.9%
*Competing Motives	10.2%	32.9%	34.7%	17.4%	4.8%	10.0%	33.9%	30.6%	21.5%	3.9%
Debilitating Anxiety	5.4%	29.3%	43.1%	19.8%	2.4%	6.7%	23.9%	44.8%	17.6%	7.0%
Discouraged about School	11.4%	40.7%	37.7%	9.6%	0.6%	14.2%	40.0%	32.7%	10.6%	2.4%
Economic Orientation	0%	4.5%	43.3%	35.7%	16.6%	0.3%	4.8%	51.7%	32.0%	11.2%
Influencing Motives	5.4%	12.0%	56.3%	22.2%	4.2%	4.8%	13.9%	52.7%	22.0%	6.6%
*Withdrawing Motives	12.6%	32.3%	37.1%	15.6%	2.4%	11.6%	26.6%	36.7%	19.0%	6.1%

Note. Distributions for scales marked with an asterisk (*) are consistent with the hypothesized patterns.

Discussion

Theoretical publications detailing characteristics of "Millennials" offers college educators important food-for-thought. Our results suggest, however, that the related information should not be considered the definitive guide to college students. The distribution of responses to items related to academic motivation supported three of the seven hypotheses suggested by the theoretical literature, with a fourth hypothesis showing mixed results across the two samples. The remaining hypotheses were not supported. Collectively, these findings have implications for teaching philosophy and pedagogy. They suggest that teaching philosophies grounded in theoretical literature, or anecdotal observations, may lead to overgeneralizations about our students. The results also suggest that providing active, collaborative, and informal learning experiences may increase student engagement and thus, understanding.

References

Coates, J. (2007). *Generational learning styles*. River Falls, WI: LERN Books.

Georgia Institute of Tech. (2010). CIRP freshman survey: Georgia tech trends 1976 –2010. Atlanta, GA: GIT.

Howe, N. & Strauss, W. (2000). *Millennials rising: The next great generation.* New York: Vintage Books.

Murray, N. D. (1997). Welcome to the future: The millennial generation. *Journal of Career Planning &Employment, 57*(3), 36-42.

Novotney, A (2010, March). Engaging the millennial learner. *Monitor on Psychology, 41*(3), 60.

Raines, C. (2002). *Connecting Generations: The sourcebook for a new workplace*. Menlo Park, CA: Crisp Learning.

Sax, L. J., Lindholm, J. A, Astin, A. W., Korn, W. S., & Mahoney, K. M. *The American freshman: National Norms for fall 2002*. Los Angeles, CA: Higher Education Research Institute.

Navigating Uncharted Waters: Study Abroad Pre-Trip Activities and Their Impact on Student Experiences

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Abstract: Study abroad programs typically reveal issues in group dynamics that are not commonly found in classes on the home campus. At this branch campus of University of Cincinnati, we offer three short-term summer study abroad programs. Students in these programs have traditionally participated in social gatherings and orientations on culture, behavior, travel logistics, program itineraries and course curricula prior to the trips. In spite of these efforts, problems in these areas continue to arise occasionally. As program leaders, we conducted a qualitative evaluation of pre-trip activities in an attempt to reduce problems and improve the student experience. In order to identify student concerns about travel abroad and to measure the effectiveness of pre-trip orientation meetings, we administered open-ended student surveys, one pre-trip and one post-trip. Using grounded theory and contrastive analysis, we have found that students express a variety of concerns in the areas of group dynamics, culture shock, homesickness, and language proficiency. Moreover, post-trip surveys indicate that our early preparations positively affected students' experiences abroad. As a result of our findings, we will offer suggestions for improving study abroad pre-trip activities.

Literature Review

Studying abroad, regardless of the length of the experience, has a marked effect on student global engagement (Donnelly-Smith, 2009) and future career choice (Norris & Gillespie, 2010). Not surprisingly, participation in study abroad has increased by 150% since 2000 (Goel, De Jong, & Schnusenburg, 2010). There is little literature, however, on how pre-trip activities affect student study abroad experiences. Koenig (2007) remarks that a discussion of what should be included in pre-trip sessions has largely been ignored. He continues by stating that what typically have been included are materials to familiarize students with the intended destination but nothing to reduce student anxiety or to foster group cohesion (Koenig, 2007). Pre-departure activities are particularly important in light of research suggesting that behavioral beliefs linked with student perception of the value of study abroad is the primary driver of student participation (Goel, De Jong, & Schnusenberg, 2010). Such value can be undermined if students feel anxious, unprepared, or socially isolated.

Methodology

Before engaging in the established pre-trip activities, students completed a brief open-ended survey about their concerns regarding group dynamics, culture shock, and behavior abroad. After the trip, students completed an open-ended survey about their perceptions of the effectiveness of the pre-trip activities and their suggestions for how these activities could be improved for future trips. The pre-trip student survey responses were collected by one of the researchers who was not the study abroad course instructor. The post-trip survey was online. Using grounded theory and contrastive analysis, each of the five researchers independently analyzed the survey responses and created descriptive codes. As a group, the researchers compared their findings and reached agreement on themes.

Results

Analysis of the pre-trip survey revealed five themes regarding positive and negative aspects of cultural experience, group dynamics, language, international travel, and group leaders. Preliminary analysis of the post-trip survey indicates that preparation activities, including new workshops designed to help students write their own behavior abroad policies, had a positive impact on students' experience abroad. In addition, while preparation activities did not eliminate issues related to homesickness, transgressive behavior, and interpersonal conflicts, they seem to have helped to minimize or reduce the number and severity of the problems we experienced.

Discussion

Based on our analysis of pre- and post-trip surveys, preparation activities in study abroad programs positively affect students' experiences abroad. Although our study included three different programs with three different sets of preparation activities, in survey responses, students indicated similar concerns about studying and traveling abroad. We conclude that pre-trip activities— including behavior policy workshops, orientations on culture and travel, and social gatherings—help students navigate the unfamiliar territory inherent in study abroad.

References

Donnelly-Smith, L. (2009). Global learning through short-term study abroad. *Peer Review*, 12-15.
Goel, L., De Jong, P., & Schnusenberg, O. (2010). Toward a comprehensive framework of study abroad intentions and behaviors. *Journal of Teaching in International Business 21*, 248-265.
Koenig, S. (2007). Planning, organizing, and conducting a 2-week study abroad trip for undergraduate students: Guidelines for first-time faculty. *Journal of Marketing Education 29*(3), 210-217.
Norris, E. M, & Gillespie, J. (2010). How study abroad shapes global careers. *Journal of Studies in International Education 13*(3), 382-397.

Optimizing the Teaching and Learning of Technology Education Programme in Nigerian Universities

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Abstract: Technology Education in Nigerian universities involves an effective interaction amongst the technology teachers, the students and the environment. The environment which includes workshop facilities enables the teacher to attain the stated objectives of the programme. These traits could only be attained if the teacher adopts an approach that effectively associates with the use of facilities. However, doubts have been raised over the availability and utilization of workshop facilities and effective management techniques needed for attaining competence in the programme. This study therefore was designed to determine the availability of workshop facilities, their frequency of utilization and the identification of management techniques needed for improving the teaching of technology education programme in Nigerian universities. To carry out the study, three research questions will be raised to guide the study. An instrument containing 208 items will be developed and will be used to obtain data from a population of 105 lecturers in ten universities offering technology education programmes in the south-east and south-south zone of Nigeria. Frequency count, mean, percentage and the National Universities Commission minimum recommended facilities for the programme will be used to answer the research question. Based on the findings, recommendations will be made for an improved optimization of the teaching and learning of the technology education in the universities in Nigeria and across the African continent.

Introduction

Technology education is the training of technically oriented personnel who are to be the initiators, facilitators and implementers of technological development of a nation by adequately training its citizenry on the need to be technologically literate, leading to self-reliancy and sustainability.

Teaching and learning in technology education programmes according to Saran (1999) requires a close interactive process between the teacher and the learner which results in the learner gaining knowledge, technical information and skills. It therefore becomes necessary that the students and teachers should posses strong interest in a course area, ability in manipulative skills, and an innate aptitude in the field of teaching. On the other hand, the instructor of technology education among other qualities should have a good knowledge of the course area, and be able to teach effectively inorder to meet the learning needs of the students. Technology education contributions are widespread and visible ranging from Mechanical/metalwork technology, Electrical and Electronic technology, Building and Woodwork technology etc. Consequently, technology education can serve as change agents not only for technical systems but also for many other societal changes. The practical nature of the subject makes it unique in content and approach, thereby requiring special care and attention. The teaching of technology education in Nigerian Universities has not been very impressive, as most graduates from this type of education do not possess enough skills to enter into the world of work.

This study therefore is designed to determine the extent of availability of workshop facilities, their rate of utilization by technology education teachers and what workshop management technique would be employed by these teachers inorder to optimize instruction in our technology education programme in Nigerian Universities.

Significance of the Study

This study will be significant for a number of reasons:
- It will reveal the number of workshop facilities that are provided and available in the universities as well as indicate how often they are been utilized for instructional purposes.
- The University authorities will by the findings know the facilities that must be provided for effective instructional purposes and encourage the instructors of the programme to source for locally made materials to complement the ones provided by the schools.
- It provides measures to encourage the teachers of this programme to maximize the use of existing facilities.
- The study will also help the teachers and instructors of technology education programme to apply effective

management technique that will enable them achieve a high level of instructional effectiveness and avoid any possible area of deficiency.

- The study will help the students of technology to be better acquainted with good theory blended with adequate practice, instead of only being knowledgeable with the "theory of practice" as commonly observed in the programme today.
- The study will specifically help to revamp the ailing standard of technology education in post primary and tertiary institutions across the African continent and the entire globe as it will better equip graduates of the programme with the basic rudiments needed for instruction and practice.
- Finally, it is expected that the study would motivate all financiers of education to re-assess the level of availability, adequacy and utilization of workshop facilities in our technology education programme in order to determine whether their contribution (if any) is/are enough or needs improvement.

Research Questions

The following research questions will guide the study:
1. What is the level workshop facilities provided for teaching technology education in the universities?
2. How adequate are the facilities when matched with the National University Commission minimum standard?
3. How frequently are the available workshop facilities utilized for the teaching of technology education programme in the universities?
4. What are the management techniques needed by teachers for optimizing instruction in technology education programme?

Methods

The descriptive survey design will be used for this study which will be carried out within the South-East and South-South geopolitical zones of Nigeria. The population of the study consists of all technology education teachers in the ten public Universities, offering technology education programmes in this zone. The researcher shall not take any sample, as the number of teachers in the departments under study with a population of 105 is deemed a manageable size and the respondents can be adequately reached. Two sets of structured questionnaire "Facility Assessment and Utilization Questionnaire" (FAUQ) will constitute the research instrument and administered to the respondents by the researcher. Percentage, mean and standard deviation will be used to answer the research questions.

Other Details

The research work is a descriptive survey design type and the researcher will adopt the power-point presentation method. The research will be appropriate at the college and post-college level and will help the international audience to rationalize the reasons responsible for the poor technological development in Nigeria, the African continent and most developing countries in the world and thus foster ways to drastically and radically change this ugly trend.

Reducing Student Anxieties Through Assertiveness Training Workshops: Research Outcomes

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Abstract: When faced with a closed curriculum, our research supported skills-based workshops as a viable option. For example, in a teacher training program, much time is spent teaching students relevant aspects of child and adolescent psychology, and the associated methods for classroom management and leadership, but little, if any, time is spent helping students learn how to manage conflict with adults with whom they will interact in the course of their professional careers, e.g., parents, colleagues, supervisors. An extensive database search revealed no resources on how to teach education students the skills to work with parents, particularly if the parents presented their issues in a verbally aggressive manner. To address this long-standing issue, that may not be amendable to curriculum changes at various universities, a interactive assertiveness skills workshop was designed for teacher education students. This voluntary, non-credit workshop is suitable for professors without a psychology degree to present to their students. Data from pre- and post-workshop questionnaires revealed encouraging trends towards increasing students' levels of confidence in standing up to verbally aggressive people, their perceived levels of ability to handle such conflict, and their levels of fear/anxiety about being in such situations. Most importantly, they also indicated a positive shift in students' beliefs about their abilities to defuse situations involving verbally aggressive adults. This presentation will consider outcomes from a research project based on these workshops and will discuss the efficacy of the workshop model as an alternative to classroom-based study.

Background

Teacher training in Canada is offered through many different models. The syllabi for these baccalaureate degree programs vary according to the institution, but a survey of the published calendars of universities across Canada offering these degrees revealed that few have a specific course in interpersonal communication skills. Of those institutions that do have such courses, the focus appears to be on the skills necessary for effective classroom teaching and management. A search of educational research literature, using key words such as *assertiveness* and *conflict resolution* among others, garnered few articles addressing such issues. Of those that were found, the focus was on providing conflict management skills to administrators or changing a school's environment (Austen & Harkins, 2008; Trinder et al., 2010). There appears to be a significant gap in research specifically related to providing assertiveness training to students.

Veenman's (1984) meta-analysis of international research into the beliefs and attitudes of pre-service and beginning teachers indicated that concerns around classroom discipline were at the top of list in almost every study. Little has changed with that regard in that most students with whom we work still list handling classroom discipline and management as one of their main anxieties. While most experience a lessening of this concern as they gain experience, what often remains is anxiety related to interactions with difficult/angry adults, especially parents. This is an area that is important but is often overlooked in the crowded, teacher education curriculum. This study investigates how such training might be effectively provided through a professional development workshop outside of the regular course structure.

Methods and Results

Students were given the opportunity to participate in a four-hour workshop jointly conducted by two faculty–one a registered psychologist and the other with extensive leadership experience in junior and senior high schools. At the beginning of the workshop, the students were invited to participate in the associated research by giving consent for their completed pre- and post-workshop questionnaires to be part of the data collection. All forty participants gave consent. The pre-workshop questionnaire asked the students to describe a "worst fear" scenario involving an interpersonal conflict they expected to encounter in their teacher experiences. They were then asked, using a Likert scale, to rate their ability to handle such conflict in a healthy win-win manner, their confidence in managing such a conflict in this way, and their level of fear of being involved in such a conflict. After a brief information session on how the human brain processes conflict, the workshop leaders role-played a number of scenarios to demonstrate techniques for diffusing situations involving verbally aggressive individuals. Following each demonstration, the

students worked through various scenarios by means of role-play in which they were to practise the specific technique shown. The workshop leaders supported the students by observing the groups and providing praise and intervening directly only when necessary to assist students who experienced difficulty using the technique. After each practice session, the students came together as a large group and discussed how effective the technique was as they were using it. The post-workshop questionnaire asked the students to revisit their original scenario and to provide ratings on the same three variables, using the same Likert scale, based on how they felt now after receiving training. In addition, they were asked to rate the effectiveness of the workshop itself in terms of whether they would recommend it to other students, how well they felt it prepared them to deal with difficult/angry people, and what degree of future utility they perceived for the information and techniques they had learned.

Students reported that being able to gain information independent of being graded and having the opportunity for practice in the form of role-play based on the high- stress scenarios identified by them was more useful than a formal course. Descriptive analysis indicated that prior to the workshop, 90% of the participants rated both their ability to handle their "worst fear" scenario and their confidence for doing as being poor, while 48% chose the highest fear rating on a five point scale when envisioning being in such a scenario. Data from the post-workshop questionnaires indicate that only 10% of the students still rated their ability level at poor. As to the workshop itself, 100% indicated that they would recommend this workshop to other students, 84% reported feeling better prepared to manage encounters with difficult/angry people, and 90% perceived a high degree of future utility for what they had learned. Additional data analysis is currently being undertaken and will be presented at the conference as well as in a manuscript being prepared for publication.

Conclusions

The intention of our conference presentation is to inspire faculty to create workshops for their students when the curriculum cannot fully address their training needs. In addition, we want to share our challenges and successes in running a workshop to meet a particular need among our students.
We intend to conduct a follow-up survey of the participants as they enter their final, four-month practicum to determine whether the skills training provided by this workshop does carry over into the classroom. We will share these findings during our conference presentation.

References

Austin, M. S., & Harkins, D. A. (2008). Shifting spaces and emerging voices: Participation, support, and conflict in one school administrative team. *Early Education Development*, *19* (6), pp. 907-940.

Trinder, M., Wertheim, E. H., Freeman, E., Sanson, A., Richardson, S., & Hunt, S. (2010) Comparison of the effectiveness of two forms of the Enhancing Relationships in School Communities Project for promoting cooperative conflict resolution education in Australian primary schools. *Journal of Peace Education*, 7: 1, pp. 85 -105.

Veenman, S. (1984). Perceived problems of beginning teachers. *Review of educational research*. 54(2): 143-178.

Success Factors of Work-integrated Learning (WiL) on Higher Education in Thailand

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Abstract: This research purposes to find out what the success factors of Work-integrated Learning (Work-integrated learning-WiL) in higher education to appropriate upon Thai educational context and society. In order to lead to the results is then to design and develop guidance of practical manual of all parties involved follow. The result is used to create a questionnaire and then implied to the research sample of the best practices both management level and operational level of employee. The results were analyzed and summarized return verified by a focus group discussion process for validation the accuracy and prioritized of the success factors. The results showed that success factors of management WiL consisting of two factors were Key Success Factors (KSFs) on cooperation and Critical Success Factors (CSFs) on management. The three KSFs were institution, industry and professional association. The sixth CSFs were curriculum, pedagogy, teacher, learner, industry and financial. In the success factors, the subjects consist of 349 samples who were randomly selected from industry, academy, professional association and employer by a simple random sampling. Self rating questionnaires consisting of 6 topics are (1) curriculum (2) pedagogy (3) learner (4) teacher (5) industry and (6) finance. The data is used to analyze descriptive statistics and to analyze exploratory factor analysis, confirm factor analysis and to test structural relationship between the proposed model and the empirical data. The results of the study revealed that the relationships between the success factor in the WiL Pagoda Model are statistically significant at p-value = 0.05 for all variables. The model's overall fit are accepted.

This research purposes to find out what the success factors of Work-integrated Learning on Higher Education to appropriate upon Thai educational context and society.

Literature Review

Work-integrated learning or WiL is the term used to describe educational activities that integrate theoretical learning with its application in the workplace. From our previous research (Chinintron et al., 2009) we found that worldwide WiL has nine types: (1) Pre-course Experience, (2) Sandwich Course, (3) Cooperative Education, (4) Cognitive Apprenticeship or Job Shadowing, (5) Joint Industry University Course, (6) New Traineeship or Apprenticeship, (7) Placement or Practicum, (8) Fieldwork, and (9) Post-course Internship. However, WIL, in higher education in Thailand divides into four types including Dual Vocational Training (DVT), Cooperative education, Apprentice and Internships

Methodology

In the WiL Model, in seeking the appropriate educational context in Thailand, we want a process that is based on seeking multi-lateral ways to include related research and document studies, field surveys, observations, executive in-depth interviews, best practice studies, focus group discussions, as well as the recommendations of the expert's and the summaries of questionnaires. We then can, analyze, summarize and create a new WiL model.

In the success factors, the subjects consist of samples who were randomly selected from industry, academy, professional association and employer by a simple random sampling. The data is used to analyze descriptive statistics and to analyze exploratory factor analysis, confirm factor analysis and to test structural relationship between the proposed model and the empirical data.

Data Analysis and Results

Overall total sample the opinions of the success factors WiL agree on very good level (x= 3.91-4.24) and Were not very different (SD= 0.65-0.94). The results of the study revealed that the relationships between the success factor in the WiL Pagoda Model are statistically significant at p-value = 0.05 for all variables. The model's overall fit are accepted; Chi-square statistic (X^2) = 325.56, df = 312, p-value = 0.29; RMSEA (Root Mean Square Error of

approximation) = 0.011; SRMR (Standardized Root Mean Square Residual) = 0.054; GFI (Goodness-of-fit index) = 0.95; AGFI (Adapted goodness-of-fit Index) = 0.91; CN (Critical N) = 414.72.

The results showed that success factors of management WiL consisting of two factors were Key Success Factors (KSFs) on cooperation and Critical Success Factors (CSFs) on management. The three KSFs were institution, industry and professional association. The sixth CSFs were curriculum, pedagogy, teacher, learner, industry and financial. Results from the process is the WiL Pagoda Model as shown in Figure 1.

WiL Pagoda Model
The conceptual framework of Work-integrated Learning model for higher education in Thailand.
Thailand WiL Working Group (WWG)®
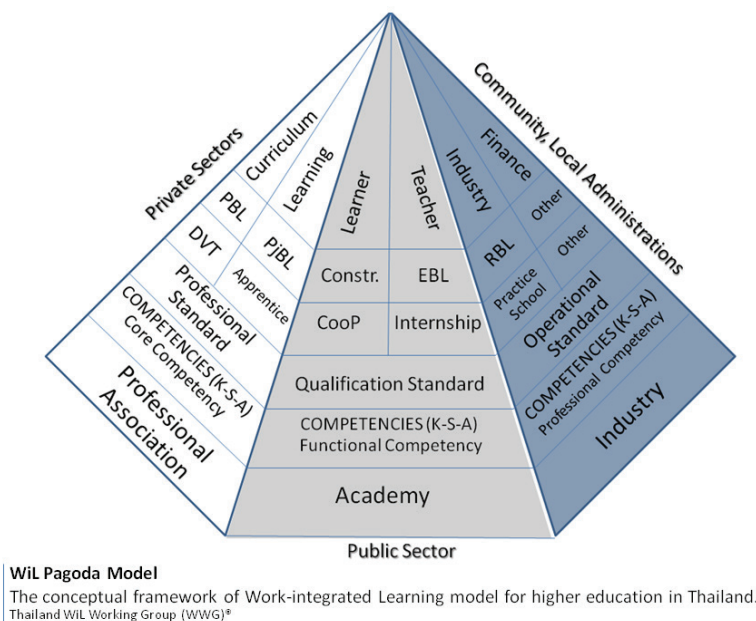
Figure 1. WiL Pagoda Model.

Discussion

The results showed that success factors of management WiL consisting of two factors were Key Success Factors (KSFs) on cooperation and Critical Success Factors (CSFs) on management. The three KSFs were institution, industry and professional association. The sixth CSFs were curriculum, pedagogy, teacher, learner, industry and financial.

References

Calway, B. A. (2005). What has Work-Integrated Learning Learned? – A WIL Philosophy. A Calway Swinburne University of Technology, Lilydale, 2005)

Chinintron, P. et al. (2010). Development of Guideline of Work-integrated Learning Model. Commission on Education,

Gibson, E., et al (2009). Towards the Development of a Work Integrated Learning Unit. [Online] Available: http://www.cfl.mq.edu.au/celebrate/pdf/papers/gibson1.pdf

Higher Education Commission (2009). Higher long-term development plan framework 15 Years (2008-2020). Office of Higher Education Commission, Bangkok.

Kiratikorn, K. (2009). Crisis Paradigms and Concept to Educational Reform. Office of The Education Council. Bangkok, Thailand.

Martin, E. (1997) The Effectiveness of Different Models of Work-based University Education Department of Employment, Education, Training and Youth Affairs J.S. McMillan Printing Group

Thailand WiL Working Group (2009). Work-Integrated-Learning in Higher Education. Committees of the Education Council, Bangkok.Ally, M. (2007).

Office of The Education Council (2010). Long-term Higher Education Framework 15 years, 2nd edition (2009-2020). Ministry of Education, Thailand.

Tackling Scientific Literacy Through Game-Based Learning: A Design-Based Research Project

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Abstract: Learners enrolled in science programs at post-secondary institutions may have deficits in their scientific illiteracy, specifically in their ability to understand the language of science and evaluate scientific claims in journal articles and reports. This design-based research study represents the first phase of an ongoing project exploring the role that digital educational games designed to support knowledge building within small groups can play in addressing issues of engagement and literacy in science education. A set of game design principles derived from the existing literature was used to inform the development of a prototype of the game. The prototype was evaluated by a group (N=18) of educational technology graduate students at a local university. Qualitative research methods were used to evaluate the effectiveness of the game design principles and document interactions within the game. Data collection methods included participant observation, a player characteristics survey, interviews, and content analysis. The final products of this study were game design principles and a game prototype. Data gathered from this study will be used to inform the design of the game, and future research in the area of digital game design and implementation (e.g., learning analytics, inoperability of the game on different MUVEs).

Literature Review

A literature review was conducted prior to the initiation of the game design process and focused on four areas: science education, distributed cognition, knowledge building, and game-based learning environments. Science courses and programs in post-secondary institutions in North America have the lowest retention rates of all academic disciplines, with the most highly qualified learners being those most likely to switch from science to other fields of study. One of the problems with science education is that it fails to equip learners with the skills that they need to develop solutions to ill-defined problems (Copper, Cox, Nammoux, & Case, 2008). Hume (2009) suggests that climate change is an example of an open-ended subject that is better analyzed using 'systems science' rather than a reductionist approach. Kiili (2007) argues that there is only minimal research in the field of educational technology on how to design gaming environments that foster knowledge building and problem-solving while still engaging learners.

Methodology

This study used a DBR approach to capture information about the success of the design in promoting distributed cognition and knowledge building in a digital educational game as well as to assess the efficacy of the current set of game design principles and use the information gathered to inform the next iteration of game development. A DBR approach was chosen because it is appropriate for a project in the developmental stages and for situations in which there is a discontinuity between traditional or typical forms of educational practice and those forms that are the focus of the study (e.g., innovative approaches) (Design-Based Research Collective, 2003). The researcher in this study played a number of roles including designer (instructional, game, web and visual), facilitator, participant observer, and data collector and analyzer.

The data collection process began in 2007 when the researcher began a literature review into the area of digital game-based learning and continued as she investigated possible development platforms for the design and delivery of an alternative reality game focused on the topic of climate change. A decision was made to use the multi-user virtual environment (MUVE) called Second Life as the game design platform for this project. Consultations with instructors in the fields of geosciences, biology and the health sciences highlighted certain issues in scientific literacy in first and second undergraduate science classes, such as, an inability to extract relevant information from primary information sources like scientific journals. A game design prototype was developed and reviewed by the instructors whom the researcher consulted and their comments led to revisions to the game prototype.

The game was evaluated by a group of educational technology graduate students in 2011. Data collected from that evaluation included participant observation, a participant characteristics survey, video capture data, a text chat transcript and an interview. Data were analysed using frames and codes. Four main categories summarize the major themes in the project (a) instructional goals, (b) design, (c) learning experience, and (d) delivery. These themes

represent the frames that were used to analyse the research results. Subcategories or codes were associated with each frame allowing for in-depth data analysis of the results.

Results

The frame *Design* describes the game implementation and design principles that informed the development of the game created for this study as well as the design process (Lai, Calandra & Ma, 2009). Seven subcategories or codes are associated with this frame that relate to the game design principles that was used to inform the game design: (1) relevance, (2) distribution, (3) interaction, (4) engagement, (5) support, (6) narrative/fantasy, and (7) articulation. Each code describes features of game-based learning environments designed to promote engagement and support knowledge sharing, negotiation, and building. These codes were developed following an analysis of the literature in the areas outlined above and were refined as a result of findings of the evaluation session.

The code *Interaction* refers to design features that are intended to support a condition called positive interdependence which is a condition in which the environment is structured in such a way that learners understand that to achieve their goals they need to work cooperatively. Players are expected to participate on their teams in the capacity of resident expert. This role play element of the game is designed to mimic the kind of mental work that takes place in the scientific community, wherein a variety of experts work with scientists in different knowledge domains to solve a complex problem, connecting past, present and future. Two players engage in rephrasing and mirroring behaviors as evidenced by a conversation in which they speculate about the connection between the murder/murderer and a woman who visited the local medical clinic suffering from depression and an anxiety disorder and whose contact information indicated that she was staying at a local ranch with friends.

Discussion

The five key contributions that this study makes to the field of educational technology are (1) an inquiry into the pros and cons associated with use of MUVEs as a game development platform, (2) refinements to DBR process (e.g., learner support features), (3) refinements of virtual research methods in MUVEs (e.g., documenting and interpreting non-verbal communication), (4) contributions to digital educational game design (e.g., instructional approaches to teaching of complex subjects which are not easily addressed in the 'real world'), and (5) contributions to theory of knowledge building and distributed cognition.

This study revealed a number of other areas of research that could be pursued either in concert the existing project (e.g., evaluation and refinement of game design principles) or as distinct research projects. These areas of research include: the learning affordances of MUVEs, refinement of the data collection process, interoperability of the game, refinement of concepts and variables associated with distributed cognition and knowledge building, and improvements to the game design evaluation process.

References

Cooper, M. M., Cox, C. T., Nammoux, M., & Case, E. (2008). An assessment of the effect of collaborative groups on students' problem-solving strategies and abilities. *Journal of Chemical Education*, 85(6), 866-872.

Design-Based Research Collective (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational Researcher*, 32(1), 5-8.

Kiili, K. (2007). Foundation for problem-based gaming. *British Journal of Educational Technology*, 38(3), 394-404.

Hume, A. (2009). Authentic scientific inquiry and school science. *Teaching Science*, 55(2), 35-41.

Whitton, N. (2009). *Alternative Reality Games for Orientation, Socialisation and Induction (ARGOSI)*. Manchester, UK: Manchester Metropolitan University. Retrieved from http://argosi.playthinklearn.net/final.pdf.

Technology Integration Through the Lens of the Faculty Decision Making Process

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Abstract: When faculty requires technology based projects in courses, they may help students develop a foundation of important skills to draw upon in the future. Successful technology integration is something that faculty and leaders must take personal responsibility for in order for understanding and learning to take place among the students they are teaching. The purpose of this study was to investigate the phenomenon of technology integration in an agriculture associate's degree program and evaluate the program from the faculty perspective as they decided what technologies to implement and how they diffused them to the students. Using Rogers Diffusion of Innovation as a model, the researcher examined technology integration over a period of eight weeks. Overall findings indicated that technology integration was being implemented in a purposeful way and faculty worked together to make decisions regarding what to integrate to the students in their courses. Faculty was supported by each other and the program leader in terms of making decisions about technology integration. It is recommended that faculty work to offer a blended learning experience in the classroom and encourage students to work with technology outside of class to create videos or podcasts to illustrate what they are learning.

Introduction

As faculty work to integrate technology and continue to feel pressure from their students and educational systems to adopt new technologies, there are still questions regarding the influence of instructional technology on student engagement and the association that may exist between technology use in a classroom and student learning. Faculties who are supported through opportunities including training, tutorials, and assistance with the integration of technology into their curriculum have been more successful at this task (Oblinger, 2005). However, little is known regarding how much technology should be infused in a class and where it is most appropriate to assist students' with the curriculum they are learning. Diffusion of Innovation provides insight into the factors that may influence an individual to utilize a new technology for instructional purposes (Bennett & Bennett, 2003). "Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 2003, p. 5).

Conceptual Framework

Rogers (1995) discussed five attributes that impact the rate of adoption: 1) relative advantage, 2) compatibility, 3) complexity, 4) trialability, and 5) observability. This suggests a need to focus on the specific pedagogical advantages of the instructional technology over a more conventional teaching tool (Bennett & Bennett, 2003). Most instructional technologies are flexible and can be put to many uses. With these attributes in mind, the researcher wanted to examine the process and implementation of technology in an agriculture associate's degree program to gain an in-depth understanding of how technology was presented to the faculty, what process was used to decide whether or not to adopt it, and the process the faculty took to integrate and diffuse it to the students.

Rapid changes in technology integration make this task difficult and force everyone within an educational system to keep pace with the constant changes. Faculties face pressure to utilize technology in their teaching and learning from administrators seeking to turn their universities into high-tech learning communities. Students do not have to possess a working knowledge of all software or hardware, but instead, a foundation that will enable them to move quickly into a new technology-based work environment with emphasis on "on the job" training (Redman & Kotrlik, 2004). Millennials represent the age group of students enrolling in colleges and universities. Born after 1982, millennials can be described as optimistic, high-achieving, and team-oriented (Howe & Strauss, 2003). Current college aged students are heavy users of the Internet, compared to the general population (Jones, 2002).

Methodology

The overall purpose of this study was to explore what the process of technology integration looked like in an agriculture associate's degree program and at what level the faculty chose to integrate technology. The major

questions guiding the study were: (1) How do educators decide what and how much technology to integrate in their program? (2)What influences their decision to integrate technology? The findings would assist instructors as they planned their courses and class sessions. With greater understanding of what the process of technology integration looks like in this program, instructors will be able to create student-centered courses that use technology as an enhancement to their sound pedagogical practices.

A qualitative research design was used. The researcher recruited participants from an agriculture associate's degree program and video recorded their class sessions for eight weeks. During this time, students were also asked to participate in semi-structured interviews using an interview guide. This guide included a list of questions that the researcher was interested in and provided topics within the specific area with room to probe and ask follow up questions based on the interviewer's responses (Patton, 2002). Each interview was transcribed with the constant comparative method used to analyze data, generating as many categories of analysis as possible (Corbin & Strauss, 2008). This identified different aspects of the same phenomenon and provided elaboration and variation. Categories were derived from the data and organized into four major themes. Two faculties and the program leader volunteered to participate in this study. Ninety-six students agreed to be videotaped and ten of those students volunteered to participate in the interview portion of the study.

Findings

Decisions about technology are made as a faculty team and adequate time and resources are allocated when the technology is agreed to be a benefit for the majority of the students in the program. Faculty are supported in their desire to implement technology through on campus workshops, training sessions facilitated by the program leader, and individual help from the companies that are providing the technology.

Classroom instruction is a central focus of the program and the faculty work hard to incorporate technology as they see fit, not for the sake of using it. Noldus Observer was used to analyze the video recorded classes to check for instructional strategies and the faculties were observed asking approximately two questions per minute during a 50 minute class. The program set high expectations for students to incorporate technology but also supported them through day long training sessions on their first day in the program, offering individual help, and making accommodations to students when the need arose. Students were expected to have downloaded course materials before coming to class, manage their coursework using the course management system, and use their previous experiences to help their own educational experience.

Discussion

The program revolves around the use of technology both in and out of the classroom and students and faculty know the expectation of integrating and using technology when they begin. All participants found the faculty and the way they integrated technology to be a major advantage to them personally and for their future careers. The faculty has worked hard, with direction from the program administrator, to meet the changing needs of the future graduates to ready them for employment in the industry. Recommendations to improve the use of the course management system and offer a more blended classroom were discussed.

References

Bennett, J., & Bennett, L. (2003). A review of factors that influence the diffusion of innovation when structuring a faculty training program. *The Internet and Higher Education, 6*(1), 53-63.

Corbin, J., & Strauss, A. (2008). *Basics of Qualitative Research*. Thousand Oaks: Sage Publications Inc.

Howe, N., & Strauss, W. (2003). *Millennials go to college.* Paper presented at the American Association of Collegiate Registrars and Admissions Officers., Washington, DC.

Jones, S. (2002). The Internet Goes to College: How Students are Living in the Future with Today's Technology. Washington, D.C.: The Pew Internet and American Life Project.

Oblinger, D., & Oblinger, J. (Ed.). (2005). *Educating the Net Generation*. Boulder: Educause.

Patton, M. (2002). *Qualitative Research and Evaluation Methods* (3 ed.). Thousand Oaks: Sage Publications Inc.

Redman, D., & Kotrlik, J. (2004). Analysis of technology integration in the teaching-learning process in selected career and technical education programs. *Journal of Vocational Education Research, 29*(1).

Rogers, E. (2003). *Diffusion of Innovations* (Vol. 4). New York: A Division of Simon & Schuster, Inc.

The Daily Pop Quiz: Teaching and Learning With Clickers

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Abstract: In recent years, technology has gained a firm foothold in higher education classrooms. The student response system (i.e., clickers) is among the most common teaching technologies incorporated into classrooms today. Given clickers' growing popularity over the last decade dozens of studies in fields ranging from biology to physics to political science have sought to evaluate clickers' effects on learning. Whereas much previous research focuses on subjective effects attributed to clickers, this study empirically examines potential mechanisms by which clickers may result in higher student exam achievement, and perhaps even promote learning. Through a combination of student survey data and experimental research, this study teases-out the avenues for increased student performance when using clickers in large classes. The results suggest that more motivated learners react differently to clickers than do those students who simply seek a passing course grade.

Literature Review

In recent years, technology has gained a firm foothold in higher education classrooms. The student response system (i.e., clickers) is among the most common teaching technologies incorporated into classrooms today (Immerwahr 2009; Winograd & Cheesman 2007). These personal devices permit students to contribute their individual opinions and quiz responses in real-time during class. Given clickers' growing popularity over the last decade, particularly among those teaching large enrollment courses, dozens of studies in fields ranging from biology to physics to political science have sought to evaluate clickers' effects on learning (e.g., Beavers 2010; El-Rady 2006; Salemi 2008; Stuart, Brown, & Draper 2004; Winograd and Cheesman 2007). Previous research generally falls into one of three categories: (1) examples of pedagogical techniques, (2) user perception studies, and (3) quasi-experimental tests of knowledge change. Nearly every study identifies benefits from incorporating clickers into the classroom; however, the causal link between "clicking" and these claimed benefits is left unexamined.

Methodology

To address the causal mechanism void in the literature, this paper explicitly studies several competing hypotheses, each seeking to explain exam score improvement (or even learning gains) from clicker use. Exploring this relationship in large classes (i.e., 80 to 300 students), this study empirically examines these potential mechanisms using a range of data: quantitative and qualitative student surveys, experimentally comparing (individual-level) in-class clicker question performance to exam question performance, and focus group responses.

Data Analysis and Results

We find that clickers improve students' performance through several mechanisms: (1) enhanced pre-class preparation, (2) more consistent class attendance, (3) increased classroom participation and attention, (4) opportunity to practice timed testing, and (5) signaling high-priority course content. Additionally, these processes appear to operate simultaneously and interactively, although with different intensities for different students, depending upon a student's initial motivation level.

Discussion and Conclusion

Broadly, we find that most students in a course using clickers (1) place greater value on attendance and therefore retain more knowledge to use on exams, (2) are more likely to look at the readings before class, and (3) demonstrate greater course satisfaction. Using clickers also appears to reduce student distractions in a large lecture course, due to the need to pay attention to frequent, interactive questioning.

The Effects of Cognitive Task Analysis-Based Instruction on Students' Achievement and Retention in Undergraduate Biology Course

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Abstract: Poor instruction has been cited as a primary cause of attrition from STEM majors and a major obstacle to learning for those who stay (Seymour & Hewitt, 1997). Using a double-blind design, this study tested the hypothesis that the lack of explicit instructions in scientific inquiry skills is a major factor in both low STEM retention and academic underperformance. This project delivered supplemental instruction to students in a laboratory-based undergraduate biology course that was derived either from cognitive task analyses (CTAs) conducted with expert biologists (treatment) or was authored and delivered by an award-winning biology instructor (control). Overall, CTA-based instruction appeared to be more beneficial than the traditional instruction for students, especially those who were low-achieving. This differential effect of CTA-based instruction may be attributed to an expertise reversal effect (Kalyuga, Ayres, Chandler, & Sweller, 2003).

Background

Poor instruction has been cited as a primary cause of attrition from Science, Technology, Engineering and Mathematics (STEM) majors and a major obstacle to learning for those who stay (Seymour and Hewitt, 1997). This research project aims to improve undergraduate retention and achievement in the biological sciences through the reformulation of instruction in the core course sequences. The core technique employed in the instructional design process is Cognitive Task Analysis (CTA), which is an effective tool for eliciting, analyzing, and representing expert knowledge in a more accurate and complete manner (Clark, Feldon, van Merriënboer, Yates, & Early, 2008). CTA-based training systems that have explicitly accommodated the tacit nature of experts' knowledge have proven to be significantly more effective than those that have not (e.g., Merrill, 2002). Further, there is substantial evidence that gaps in instructional content resulting from the omission of necessary steps in problem-solving procedures induce higher levels of cognitive load in learners, which interferes with learning and can lower motivation (e.g., Kirschner, Sweller, & Clark, 2006). To evaluate the impact of CTA-based instruction on undergraduate biology students compared to traditional instructions by an award-winning professor, the following hypotheses were tested: (1) CTA-based instruction reduces the rate of attrition in an introductory level biology course. (2) CTA-based instruction leads to increased performance in scientific problem solving as measured by the quality of biology laboratory reports.

Methodology

A double-blind experimental design was employed to test the effectiveness of CTA-based instructions compared to traditional instruction. Supplemental instructional videos were delivered to students in a laboratory-based undergraduate biology course (n = 1979) at a public, Tier-I university in the Southeast for five semesters from 2008 to 2010. The lectures were delivered by an award-winning biology instructor and were either written by him (traditional) or derived from cognitive task analyses conducted with expert biologists (CTA-based). To ensure that the treatment and control populations were equivalent in both general scientific reasoning ability and motivation, Lawson's Test of Scientific Reasoning (Lawson) and the Motivated Strategies for Learning Questionnaire (MSLQ) were both administered at the beginning of the course. Neither measure found significant differences between treatment and control samples. Dependent measures were students' course completion records and performance on lab reports scored with Universal Lab Rubric (Timmerman et al., in press).

Results

Overall, CTA-based instruction appeared to be more beneficial than the traditional instruction for the students, especially those low-achieving students. Results from the first semester (Spring 2008) showed that students (n=314) receiving traditional instruction were almost six times more likely to withdraw from the course than students receiving CTA-based instruction (8.1% vs. 1.4% of initial enrollment). Of the students who completed the course, those who received the CTA-based instruction demonstrated significantly higher levels of performance in the

discussion section of their written laboratory reports. Significantly higher performances were seen specifically in the areas of analyzing data to formulate valid conclusions, considering alternative explanations, consideration for the limitations of the experimental design and implications of the research (Feldon et al, 2010).

Results from the subsequent four semesters (Fall 2008, Spring 2009, Fall 2009, and Spring 2010) showed that biology students who had to repeat the course due to withdrawal or failure in a previous semester receiving traditional instruction were twice as likely as those receiving CTA-based instruction to withdraw from the course a second time or decline to submit the major lab report assignment (61.1% vs. 31.3% of initial enrollment). Of the students who completed the course and viewed all the instructional videos, overall differences in lab report performance between experimental and control groups were not significant. However, significant differences were found among subgroups of participants. For students who repeated the course during this study, CTA-based instruction was significantly more effective than traditional instruction for some skills. These effects appeared to be mostly contributed by female students and non-biology students.

Discussion

Most students take Biology 101 only once and earn a passing grade. However, students who struggle may withdraw from or fail the course and choose to repeat it in a subsequent semester. Students who repeated the course were assumed to have insufficient prior knowledge to succeed in the course during their first attempt. CTA-based instruction is differentially effective for these struggling students and has greatest and most reliable effects on students who were repeating the course. Further, there were limited negative effects for students who did not repeat the course. This result may be attributed to the expertise reversal effect (Kalyuga, Ayres, Chandler, & Sweller, 2003) which describes the consequences of providing specific instructional support to learners across a wide range of ability. Students with lower levels of prior knowledge benefit tremendously from highly explicit guidance. However, students with more expertise can be hindered by needing to parse instruction that is too basic for them. With regard to gender, it is possible that women in the study experience or perceive a lower level of access to informal support mechanisms than their male counterparts. Supports could include the ability to have their questions answered during class time or instructors' office hours or access to networks of supportive peers who can provide needed knowledge to bolster student understanding. Such conditions are commonly cited in studies of differential gender outcomes in science education. It is possible that the highly explicit nature of the treatment condition's instruction reduces reliance on other sources of necessary information. Conversely, use of such resources could bolster performance in the male sub-population, which would diminish observable treatment effects and potentially invoke the expertise reversal effect where CTA-based instruction was interfering with information gained outside the formal course structure.

References

Clark, R. E., Feldon, D. F., Van Merriënboer, J. J. G., Yates, K. A., & Early, S. (2008). Cognitive task analysis. In: J. M. Spector, M. D. Merrill, J. J. G. van Merriënboer, & M. P. Driscoll (Eds.), *Handbook of research on educational communications and technology* (3rd ed., pp. 577–593). New York: Routledge.

Feldon, D. F., Timmerman, B. C., Stowe, K. A., Showman, R. (2010). Translating expertise into effective instruction: The impacts of Cognitive Task Analysis (CTA) on lab report quality and student retention in the biological sciences. *Journal of research in science teaching, 47*(10), 1165–1185.

Kalyuga, S., Ayres, P., Chandler, P., & Sweller, J. (2003). The expertise reversal effect. *Educational Psychologist, 38*(1), 23-31.

Kirschner, P., Sweller, J., & Clark, R. E. (2006). Why minimally guided learning does not work: An analysis of the failure of discovery learning, problem-based learning, experiential learning and inquiry-based learning. *Educational Psychologist, 41*(2), 75–86.

Merrill, M. D. (2002). A pebble-in-the-pond model for instructional design. *Performance Improvement, 41*(7), 39–44.

Paas, F. & van Merriënboer, J. (1994). Variability of worked examples and transfer of geometrical problem-solving skills: A cognitive-load approach. *Journal of Educational Psychology, 86*(1), pp. 122–133.

Seymour, E., & Hewitt, N. (1997). *Talking about leaving: Why undergraduates leave the sciences*. Boulder, CO: Westview.

The Evidence Matrix: A Framework to Encourage the Use of All Forms of Evidence to Improve Student Work

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Abstract: Evidence-based management (EBM) is a growing area in practitioner approaches to managerial decision making. The findings from EBM suggest that practitioners do not use evidence that has been produced by scholars (e.g., Cohen, 2007). A primary reason that practitioners do not use scholarly evidence is that the evidence is not perceived to be relevant. In the current research we examine the importance of EBM in the student classroom context. Specifically, we suggest that the relevance of organizational behavior teaching can be improved by taking a broader view toward evidence that is inclusive of student intuitions. We developed the Evidence Matrix as a multidimensional approach toward evidence. We use the Evidence Matrix with students in classroom projects to make organizational behavior more relevant and to improve the quality of organizational behavior decision making.

Literature Review

Evidence is underutilized in both the business world as well as in the organizational behavior classroom. It is estimated that up to 40 percent of important practitioner decisions are based on intuition alone (Davenport & Harris, 2007). The failure to use academic evidence by practitioners includes a strong practitioner preference for evidence that is isomorphic – identical to their decision making situation (Cascio, 2007; Cohen, 2007). Anecdotal evidence suggests that in the classroom context, students often fail to internalize the importance of organizational behavior theories because scholarly evidence is not isomorphic to how they view the world and they often revert to intuition. Drawing upon research in managerial and organizational cognitions, where the causal beliefs of managers can be modeled (e.g., Laukkanen, 1994), we suggest that student causal beliefs about organizational phenomenon can be modeled. Once modeled, student cognitions become a filter by which other forms of evidence can be evaluated and made relevant. We refer to our broader framework toward evidence for practitioners and students as the Evidence Matrix. The Evidence Matrix allows a comprehensive view of evidence for increased relevance and understanding, and ultimately improved evidence-based organizational behavior decision making.

Methodology

The original application of the Evidence Matrix is in the corporate context. When applying the evidence with causal models it allows corporate clients to make informed decisions using various forms of evidence. The transition is then easily made to a function in the classroom using the Evidence Matrix to improve the quality of student work. The Evidence Matrix is comprised of four quadrants of evidence.

Analysis begins with *Intuition*. Intuition is comprised of an internal perspective and an informal approach to findings. Intuition refers to subconscious decision making associated with automated experiences and holistic hunches (Miller & Ireland, 2005). In the face of complexity and uncertainty, intuition circumvents bounded rationality allowing for satisfactory decisions to be made (Simon, 1956). However, there is a reliability concern with the evidence of intuition because it is prone to memory failure and cognitive overload (Miller & Ireland, 2005).

In order to correct for this concern, *Faith* is then analyzed. Faith consists of an external perspective and an informal approach to findings. Faith-based evidence comes in many forms including but not limited to guru books, business and trade magazines, whitepapers, blogs, and most consulting. A strength of faith-based evidence is its current application; executives turn to sources such as business magazines because they help solve current problems (Guest, 2007).
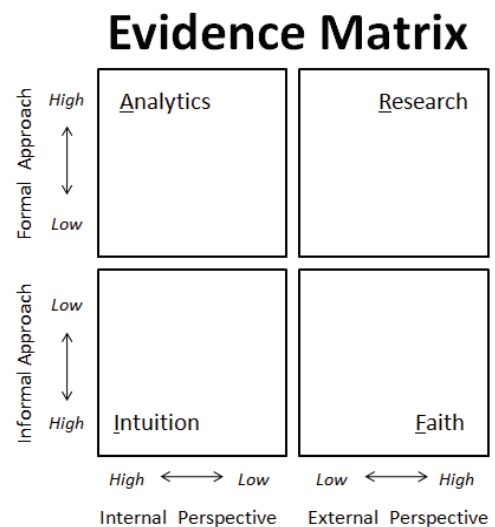
The addition of *Research* adds reliability to the combination of the evidence quadrants thus far. This is an essential aspect to evidence because it introduces the feature of traditional research methods and empirical evidence through scholarly articles. An emphasis is placed on theory, methods, and empirical rigor. It is used in this matrix to add important validity to the above mentioned quadrants by incorporating empirical evidence to instincts.

Finally, *Analytics* is the combination of an internal perspective and a formal approach. Analytics represents the use of the scientific method within a firm. The difference between research and analytics is that the former is associated with data predominately or exclusively outside the firm and analytics is associated with data predominately or exclusively inside the firm. Organizations that ascend to a moderate use of analytics-based evidence encourage experiments, trial programs, and pilot studies (Briner, Denyer, & Rousseau, 2009). This data can be collected by conducting and analyzing executive interviews or by analyzing the other quadrants and coding the results; thus filtering the information through an analytical lens in order to add validity to the findings.

The combination of these aspects is powerful in making informed decisions and improving the quality of those decisions. We cannot rely on intuition or internal knowledge alone, but the fusion of these features results in a supportive judgment utilizing many aspects of evidence to make more informed and better quality decisions.

Expected Results

The research is currently ongoing throughout the semester, but results will be complete in December of this year. Students in Organizational Behavior classes are required to collect data from all four quadrants of the Evidence Matrix in order to complete their projects, cases, and class exercises. Specifically, within group projects, students will use their *Intuition* to create their inductive model as well as read business magazines, blogs, and guru books to collect *Faith* evidence. They will then perform traditional empirical *Research* by collecting evidence from journal articles. Finally, students are required to interview an executive at a corporation to collect expert knowledge through *Analytics*. They will then take all aspects of this evidence collection to apply this informed data to their causal models to ultimately lead to evidence-based decision making. The evidence is both academic and managerial and will help students formalize their intuition and research into models. The desired outcome is improved quality of student work, improved understanding of material by students, and improved quality of causal models. Using two sections of an Organizational Behavior class, we will report both qualitative and quantitative results of our findings.

Conclusion

The primary contribution to the academic world is the addition of the theoretical approach to solve a very important problem in the business world as well as the classroom. This Evidence Matrix adds a logical perspective on the use of evidence and the importance of using all aspects of evidence to make managerial decisions based on evidence that goes beyond intuition but rather into faith, research, and analytics to formalize evidence.

References

Briner, R. B., Denyer, D., & Rousseau, D. M. (2009). Evidence-Based Management: Concept Cleanup Time? [Article]. *Academy of Management Perspectives, 23*(4), 19-32.

Cascio, W. F. (2007). Evidence-based management and the marketplace for ideas. *Academy of Management Journal, 50*(5), 1009-1012.

Cohen, D. J. (2007). The very seperate worlds of academic and practitioner publications in human resoruce management: reasosn for the divide and concrete soltuions for briging the gap. *Academy of Management Journal, 50*(5), 1013-1019.

Davenport, T. H., & Harris, J. G. (2007). *Competing on Analytics: The New Science of Winning*: Harvard Business School Press.

Guest, D. (2007). Don't shoot the messenger: a wake-up call for academics. *Academy of Management Journal, 50*(5), 1020-1026.

Laukkanen, M. (1994). Comparative Cause Mapping of Organizational Cognitions. *Organization Science, 5*(3), 322-343.

Miller, C. C., & Ireland, R. D. (2005). Intuition in strategic decision making: Friend or foe in the fast-paced 21st century? *Academy of Management Executive, 19*(1), 19-30.

Simon, H. A. (1956). Rational choice and the structure of the environment. *Psychological Review, 63*(2), 129-138.

The Use of Bar Code Technology in Grading to Improve Student Anonymity and Reduce Identity-Based Bias

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Abstract: Grading process technology has remained relatively static in recent years and present techniques may not adequately conceal student identities, thus facilitating bias on the part of instructors. This bias is an outgrowth of the instructor's ability to determine student identities. This paper studies the use and benefits of a new technology, bar codes, to provide greater levels of procedural and interactional fairness. Procedural fairness test results in Study 1 show that memorization and recognition of student bar codes is more difficult than for other common forms of identification such as names or numbers and is so perceived by students. However, Study 2 revealed that although most students supported greater anonymity in grading, many students opposed anonymity because they felt that it reduces the social process that also influences grade judgments, a process that they perceived to work in their favor.

Literature Review

Recognizing the need to grade students objectively, educators often attempt to identify and, as far as possible, remove bias from the grading process. Such bias has been shown to be influenced, often subliminally, by such characteristics as *names* (Erwin and Calev 1984)*, gender* (Haswell and Tedesco 1991), *beauty* (Landy and Sigall 1974), *race* and *ethnicity* (Piche et. al. 1977, 1978; Wen 1979), *quantity of writing* (Arthur 1976) and even *handwriting* (Leaman 1985). Previous identity concealment methods, such as the use of letters and numbers, are easily recognized by the grader. A name can be easily memorable, especially if it is associated with a face, as is normally the case with students when an instructor follows the traditional class roll and student name procedure. Although Social Security numbers or student ID numbers provide a degree of anonymity, they may also be recognizable, especially after repeated use, but also because a particular string of numbers may be memorable. This paper presents the use and the benefits of the technology of bar coding as a method for assuring student anonymity and increasing the perception of fairness. Two studies are conducted to investigate how effectively bar codes might be used to assure anonymity and to determine whether students would perceive that bar codes enhance fairness.

Methodology

As a test of differences in the capability of people to learn or memorize the association between faces and their identifiers an experiment was conducted in which the participants were tested over several weeks for retention and recognition. The design of the study was 3 (identification method: bar codes, names, social security numbers) X 5 (time period: five class periods) and both factors were within subject factors. The dependent variable is the correct number of faces matching with identification method (Groninger 2006) where participants must match each identification method to the corresponding face. To examine how students view the issue of procedural and interactional fairness of anonymity in grading, a class of undergraduate students in a large eastern U.S. university participated in a study observing the use of bar coding in assigning grades to five essays submitted throughout the semester. The actual bar code implementation was the same delineated in the bar-code-use section of the paper (p. 2). After a semester, participants were surveyed as to their feelings about the procedural fairness of bar code use, and then separately surveyed as to their perception of the interactional fairness of bar code use.

Results

The results found that the ability to memorize and properly associate the identifiers with their corresponding "student" faces was clearly more accurate for some identifiers than others. The participants demonstrated rapid progress in remembering and correctly associating names and identifier numbers with faces. However bar codes of the "student" names proved to be much harder. Thus the use of bar codes in the grading process can be seen as a way to make the grading process fairer because it can provide greater anonymity to students by reducing the instructor's ability to inadvertently determine who wrote a paper or project. See Table 1 for results.

Table 1. Test of Face Matching Task of 8 "Student's" Identifiers

	Time 1	Time 2	Time 3	Time 4	Time 5
Names	*6.6*	7.0	7.4	7.6	8.0
Social Security Numbers	4.2	6.3	6.5	7.3	7.6
Bar Codes	1.00	0.7	1.1	1.00	0.9

Values indicate the mean number of correct matching out of 8 "student" identifiers

In addition it was found that students perceived that bar codes provided greater anonymity in the grading process. We asked whether students preferred to increase anonymity. In several cases they answered "No": they did *not* prefer anonymity in the grading process. They viewed interactional fairness to be a social process as much as an academic process and felt that an anonymous grading system would eliminate the social aspect of the grading process—to their disadvantage. They thus viewed grades as a function of both academic and social skills, and viewed unfavorable the possibility of removing one of their "skill sets" from the equation.

Discussion

Grading the work of others is a subjective exercise even under the best of circumstances. Instructors try to be fair, unbiased, and objective, but the basic element of our humanity prevents us from attaining a truly objective state. Any attempts to increase objectivity still carry the risk of graders' personal biases. The results from the two studies provide support for the positive benefit of bar codes in reducing identity-based bias in grading. Because instructors must make every effort to maintain their objectivity when they engage in such a subjective activity as grading written assignments, and knowing that humans are subject to subconscious bias, instructors may find that the use of bar codes enables them to judge students' work with more impartiality. In addition, the use of bar codes may enhance students' perception that the grading process is conducted fairly.

References

Arthur, J. (1976), "Teaching at a Distance," *ERIC No.150458,* 7, 49-54*,* November.

Erwin, P. G., & Calev, A. (1984). The influence of christian name stereotypes on the marking of children's essays. *The British Journal of Educational Psychology*, 54 (June), 223-227.

Groninger, L. (2006), Variables influencing memory over long periods of time for recently learned face-name pairs. *American Journal of Psychology*, 119 (Summer), 175-191.

Haswell, R. H., & Tedesco, J. E. (1991), Gender and the Evaluation of Writing, paper presented at the *Annual Meeting of the National Council of Teachers of English*, November, 1991.

Houston, M. B., & Bettencourt, L. A. (1999), But that's not fair! An exploratory study of student perceptions of instructor fairness. *Journal of Marketing Education,* 21 (August), 84-96.

Landy, D., & Sigall, H. (1974). Beauty is talent: task evaluation as a function of the performer's physical attractiveness. *Journal of Personality and Social Psychology,* 29 (March), 299-304.

Leaman, H. L. (1985). An analysis of students' writing. *Directions an Misdirections in English Evaluation*, ed. Evans, P.J.A., Canada: The Canadian council of Teachers of English, 82-85.

Piche, G. L., Michlin, M., Rubin, D., & Sullivan, A. (1977). Effects of dialect-ethnicity, social class and quality of written compositions on teachers' subjective evaluations of children. *Communication Monographs,* 44 (March), 60-72.

Rubin, D., Turner, L. J., & Michlin, M. L. (1978). Teachers' subjective evaluations of standard and black nonstandard english compositions: A study of written language and attitudes. Research in the Teaching of English, 12 (November), 107- 118.

Schmidt, T. A., Houston, M. B., Bettencourt, L. A., & Boughton, P. D. (2003). The impact of voice and justification on students' perceptions of professors' fairness. *Journal of Marketing Education*, 25 (August), 177-186.

Wen, Shin-Sung (1979), Racial halo on evaluative rating: general or differential? *Contemporary Educational Psychology,* 4 (January), 15-19.

Twitter: An Instructional Method and Learning Environment of 140 Characters or Less

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Abstract: Twitter, a social media microblog, was utilized as a method of instructional design in Managing Affordable and Specialized Housing (Course #3634) in Fall 2010. A semester-long assignment provided an opportunity to expose undergraduate students to the vast and efficient communication network of Twitter and required them to use the medium as a source for information from housing industry experts. Students tweeted in groups of three in the collaborative learning environment of Twitter. The assignment had students following leading professionals and trade associations related to (1) military housing, (2) student housing, (3) affordable housing, and (4) community associations. Students created dialogue with professionals and associations by asking them questions about the four specialized housing industries. In order to obtain quantitative data regarding students' experience regarding Twitter, students completed *The Use of Social Media in Instructional Design* Survey in Spring 2011. The purpose of this research presentation is to share information regarding the data collected and analyzed and identify social media trends and lessons learned from the Twitter assignment and survey. Finally, the benefit of creating personal learning networks (Warlick, 2009) within Twitter will also be presented.

Literature Review

Twitter, a microblog limited to 140 characters, began in 2006. According to McFedries (2007), a "microblog can be seen as a weblog that is restricted to 140 characters per post but is enhanced with social networking facilities" (p. 84).

Personal learning networks (PLNs) have historically been created through family, friends, colleagues, books, textbooks, periodicals, television, radio, and experience. "Information and communication technologies, including an ever-growing repertoire of open source applications, have free content from the printed page, giving voice to the ideas of people we have never had access to before and enabling us to reshape our information experiences to suit our learning needs. Harnessing these new technologies to create and grow our own PLNs is imperative for educators who want to stay connected to the changing world we are charged with introducing to our students" (Warlick, 2009, p. 13). Students created their own PLNs through selecting people to follow on Twitter.

In a case study reported by Ebner, et al (2010), Twitter was used to foster informal and process-oriented learning. The results of the case study showed that Twitter supported an informal learning due to its informal communication and its transparency. Additionally, Twitter supported process-oriented learning by a "constant information flow between students and between students and teachers" (Ebner, et al, 2010, p. 99).

Grosseck & Holotescu (2008) explored and experimented with Twitter as an educational tool. Some of the techniques they employed were: course blog, reference/research, facilitating a virtual classroom, creating a learning experience, and a tool for assessing opinion. Grosseck & Holotescu (2008) surmised that Twitter can have a positive impact on instruction due to the following factors: (1) Engaging education and sharing best practices, (2) It changes classroom dynamics and connects students to the "real world", (3) It connects people who may not have met otherwise, (4) It tracks conversations, (5) It's a new and fun form of learning, (6) 140 characters keeps announcements limited and focused, and (7) Professors make themselves available outside the classroom.

Methodology

In order to obtain quantitative data regarding students' experience regarding Twitter, students completed *The Use of Social Media in Instructional Design* Survey in Spring 2011. The purpose of the survey was to determine challenges experienced with the Twitter project, discover the importance of utilizing social media in instructional design, and identify any social media trends within instructional design. The sample size of the survey was 15.

Data Analysis and Results

Survey results indicated 53% of students did not have a Twitter account prior to Course #3634 and 93% of all student accounts are still active. Almost 90% of the students rated their Twitter experience as Good or Very Good. Students stated Twitter as an instructional method "diversified my field of knowledge" and provided "networking opportunities with industry professionals." Close to 70% of students would like to use Twitter in future classroom settings and 87% believe Twitter will become more popular in future classroom settings. Only 53% believe Facebook will become more popular in future classroom settings. Inconsistent and delayed responses from industry professionals were experienced by 80% of students. Students also commented determining who to "follow" was difficulty and the 140-character limitation was difficult.

Conclusion

Feedback from the students indicated slowed and inconsistent responses from professionals and associations; however, close to 90% of students enjoyed Twitter as a learning environment. Students felt it was a collaborative and comfortable method of instruction. Twitter is an effective Personal Learning Network where students create an informal learning community through selecting people to follow. Students believe social media will continue to be used as an instructional method and learning environment; however, they feel Twitter will become more popular in the classroom than Facebook. Faculty should consider using Twitter and hashtags in other courses due to its ease of use and students' willingness to tweet. Instruction through Twitter should be encouraged as it has shown to have a positive impact on instruction and it is a powerful communication venue.

References

Grosseck, G. & Holotescu, C. (April 2008). *Can We Use Twitter For Educational Activities?* Paper presented at the International Scientific Conference eLearning and Software for Education, Bucharest, Romania.

Ebner, M., Lienhardt, C., Rohs, M., & Meyer, I. (2010). Microblogs in higher education–A chance to facilitate informal and process-oriented learning? *Computers & Education,* 55, 92 – 100.

McFedries, P. (October 2007). All A-Twitter. *IEEE Spectrum, p. 84.* Retrieved May 29, 2011 from http://spectrum.ieee.org/computing/software/all-atwitter.

Warlick, D. (March/April 2009). Grow your personal learning network. New technologies can keep you connected and help you manage information overload. *Learning & Leading with Technology*. March/April, 12-16.

Understanding Students' College Generational Status as it Impacts Mentored Undergraduate Research Experiences

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Abstract: This paper presents perspectives of undergraduates who participated in a mentored undergraduate research experience (URE) that resulted in a presentation at a regional disciplinary conference in Spring 2011. With a particular focus on differences by college generational status, we examine students' perceptions of and experiences in the mentoring relationship. A web-based survey was administered to undergraduate students who presented research at one of five regional sociological associations in the United States. The respondents (N=265) were largely female (74%), white (78%), high achieving (GPA x = 3.59, sd = .33) and came from continuing college generational families (62%). Overall, students found the mentoring experience to be beneficial. Independent samples t-tests revealed statistically significant differences based on college generational status. These differences suggest variations in approach to the research mentoring relationship. First generation students approach the mentoring relationship from a more utilitarian perspective, where continuing college students hold a broader view of the relationship seeking to capitalize on the social networking opportunity available. Limitations are addressed; practical implications discussed.

Literature Review

Tinto (1975; 1993) outlined a model for understanding college student success by focusing on both academic integration and social integration. Subsequent research supports the importance of academic integration as key to retention, persistence, and academic success (see for example Pascarella, Pierson, Wolniak, & Terenzini, 2004; Pike & Kuh, 2005; Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996). An important aspect of academic integration is student engagement (Chickering, 1974; Pike & Killian, 2001; Pike, Kuh, & Gonyea, 2003). Research demonstrates that first generation students increase their stock of cultural capital, making greater gains than their continuing generation counterparts, as they engage in collaborative learning and interactions with faculty (Filkins & Doyle 2002; Kuh, et al, 1997; Pascarella et al 2004). More, Collier and Morgan (2008) suggest that college generational status differences are predicated in a student's ability to master the "college student" role. Thus, cultural capital, student engagement, including interactions with faculty, and the mastery of the college student role are all important aspects of student success. Of the types of interactions engaged in by students and faculty, very little is known about the student engagement activity of undergraduate research experiences and the associated mentoring relationships as they pertain to college generational status. Only two exploratory studies examine the mentoring relationship in UREs by college generational status (Ishiyama 2007; Mekolichick & Bellamy, *under review*). Both of these studies found differences in expectations and experiences based on college generational status, yet both provide only a narrow view of the relationship. However, Ishiyama's study focuses only on first and second year students and Mekolichick & Bellamy separate college generational status from other variables, but included only a very small sample. Using a larger sample of students who presumably possess high levels of academic integration, cultural capital, and have mastered the "college student" role as evidenced by GPA and the successful completion and presentation of original research, what differences remain that can be attributable to generational status?

As such, we ask: Are there differences in student perceptions of the mentoring relationship in undergraduate research experiences (UREs) among high achieving first generation and continuing college students?

Methodology

A web-based survey was developed using *Qualtrics* and modified appropriately to send out to five regional sociology associations in the U.S. The survey was administered at the end of each spring 2011 conference. Each student presenter was contacted via email, presented with an informed consent statement, and invited to participate in the study. A link in the email took respondents to the survey in *Qualtrics*. The survey instrument was available to each conference group for about three weeks after the initial email. Some organizations shared email contacts with us. For these, we sent two reminder emails during that time seeking participation—one roughly mid-way through the three weeks and a final reminder three days before the close of the survey. For organizations who maintained the

contact list, we requested that they send out reminders in a similar pattern. However, most presenters at these meetings were only contacted once. Our efforts yielded a sample of 265 respondents.

Data Analysis and Results

Of the 265 respondents, 77.5% were white, 74% were women and 62% were continuing generation students with an average age of 23.7 years old (sd = 5.87). The sample contained mostly juniors (14%) and seniors (83%) who are successful students, with a mean GPA of 3.59 (sd = .33). A majority of respondents (78%) were presenting their research at a conference outside of their home institution for the first time. Largely the students reported the conference as challenging but rewarding, allowing them to enhance their research skills while building a relationship with a mentor that may have lasting benefits. Many students cited the experience as very influential in their decision to pursue an advanced degree in sociology.

Two measures in the survey gathered data on students' perceptions of desirable characteristics in a mentor. Independent samples t-tests indicate that continuing generation students reported that "standing up for the student and working on his or her behalf" was more important than first generation students (t (193.62) = 2.53, $p < .05$). Respondents were also asked to rank characteristics of a good mentor. Overall, respondents ranked being an expert in their field as most important. Independent samples t-tests indicate a difference in emphasis for first generation and continuing students. First generation students ranked "expert in their field" higher than continuing students (t (231) = 2.88, p < .01). Continuing generation students ranked being accessible as more important than their first generation counterparts (t (231) = -2.00, p < .05).

Respondents were asked to rank the most important to least important characteristics of *their* mentor for this conference presentation. Independent samples t-tests reveal that first generation students ranked "friendly" as more important than continuing generation students (t (220) = 2.27, p < .05). When asked to rank the *benefits gained* from their experience in working with the mentor that led to this conference participation, first generation students ranked "enhancement of academic credentials" statistically significantly higher than continuing generation students (t (217) = 2.19, p < .05). Continuing generation students ranked "continuing relationship with faculty member" statistically significantly higher than first generation students (t (155.81) = -2.45, p < .05).

Discussion and Conclusion

The scant literature on the mentoring relationship in UREs is consistent in identifying meaningful differences among students based upon parent's educational attainment (Ishiyama 2007; Mekolichick & Bellamy, *under review*). Our project sought to explore if differences in college generational status persist as students successfully navigate higher education and engage in UREs. All the students in our sample are successful. They have high GPAs, successfully conducted and presented original research at a disciplinary conference, and have clearly identified graduate school and career aspirations. Our data suggest that high achieving first generation students approach and experience the mentoring relationship differently than high achieving continuing college students. The first generation students in our study approach the mentoring relationship from a more utilitarian perspective, thinking primarily about the educational and career-specific benefits gained. Continuing college students, while mindful of the academic benefits, privilege the social networking opportunity the mentoring relationship affords. With this knowledge UR faculty mentors can emphasize the value of social networking for graduate school and career advancement among their first generation protégés, paying particular attention to cultivating these skills to further assist their student's development.

References

Ishiyama, J. (2007). Expectations and perceptions of undergraduate research mentoring: Comparing first generation, low income white/caucasian and african american students. *College Student Journal*, 41, 540-549.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures for student attrition*. (2nd ed.). Chicago: University of Chicago Press.

Using Problem-Based Learning to Foster Student Development

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Abstract: At the University of Michigan, professors Marshall, Shtein, and Daubmann (2011) have developed a "multidisciplinary hands-on think tank" (p. 1). Their *SmartSurfaces* course is offered to students majoring in engineering, art, and architecture as part of the university's Multidisciplinary Learning Team Teaching Initiative (MLTT). The course provides insight into the efficacy of hands-on, Problem-Based Learning (PBL). A follow-up survey conducted by Bierwert, Olds, and Barber (2010) on behalf of the university's Center for Research on Learning and Teaching (CRLT) revealed high levels of student learning through this course. Students reported developing strong skills related to critical thinking, oral communication, and creative thinking. Their ratings of their learning far exceed the levels of learning reported by students in aggregate across the other MLTT-funded courses offered at the university. This presentation will discuss the *SmartSurfaces* course, report outcomes of the Bierwert, Olds, and Barber study, and report findings of additional research (currently underway) by Chance, Marshall, and Barber.

Literature Review

Marshall, Shtein, and Daubmann (2011) apply innovative student-centered PBL pedagogies in the *SmartSurfaces* course they offer at the University of Michigan. Duffy and Bowe (2010) explain that:

> Student-centered approaches include problem-based learning (PBL), enquiry learning, project-based learning, discovery learning, case-based teaching and just-in-time teaching. A review of these learning and teaching methods concluded that they encourage deep approaches to learning, improve critical thinking and self-directed learning and are based on an established understanding of how the brain functions and theories of learning (Prince & Felder, 2006). The unifying theme is that they are inductive, the problem or project is presented first and this drives the learning so that students develop questions before seeking answers. (p. 3)

According to Belhot, Guerra, and Kuir (1998), PBL is "an instructional strategy characterized by the use of real world problems, as a context for students to develop critical thinking and problem-solving skills, and acquire knowledge of the essential concepts related to the course" (p. 3).

SmartSurfaces spans many boundaries that have traditionally divided disciplines. Marshall, Shtein, and Daubman (2011) have found that as new models of practice emerge, it is necessary to create new pedagogies. Emerging models challenge existing institutional constraints and traditional disciplinary structures that have been limiting the broader social, technical, and economic benefit that universities can generate for society (Gibbons et al., 1994). Universities must cultivate better practices, the Association of American Colleges and Universities (2002) noted, including ones that develop students into "integrative thinkers who can see connections in seemingly disparate information and draw on a wide range of knowledge to make decisions" (p. 21). The National Academies agree— urging schools to "introduce interdisciplinary learning in the undergraduate environment, rather than having it as an exclusive feature of the graduate program" (2005, p. 55) and encouraging students to "seek out interdisciplinary experiences, such as courses at the interfaces of traditional disciplines" (2004, p. 4). At the University of Michigan, Marshall, Shtein, and Daubmann are working to help students become extra-disciplinary thinkers and doers with "habits of mind" (Huber & Hutchings, 2004, p. 1) that facilitate hybrid responses to complex performance problems.

Methodology

This session will describe specific PBL *Teaching Methodologies* used by Marshall, Shtein, and Daubmann (2011). Presenters will also explain the *Research Methodologies* used by: (1) Bierwert, Olds, and Barber (2010) to collect the original quantitative survey data; (2) Marshall, Shtein, and Daubmann to collect qualitative data throughout the *SmartSurfaces* course; and (3) Chance, Barber, and Marshall to study specific outcomes of the *SmartSurfaces* course—outcomes related to intellectual and epistemological development that accrues from Problem-Based Learning (Perry, 1999).

Currently, professors Chance, Marshall, and Barber are extending prior research by Bierwert, Olds, and Barber (2010) and Marshall, Shtein, and Daubmann (2011). They are conducting statistical analysis of Bierwert et al. data and textual analysis of learning blogs created during the *SmartSurfaces* course. In analyzing texts, they are looking for evidence of high-level development (Bloom, 1956; Perry, 1999) and integration of learning (Barber, 2009). Analyses of quantitative survey data will complement their qualitative inquiry to provide a holistic approach to assessment.

Results

In the Student Assessment of MLTT Courses, a survey conducted at the University of Michigan by Bierwert, Olds, and Barber (2010), students in the *SmartSurfaces* course (SS) reported much higher levels of development in a wide range of critical thinking, oral communication, and creative thinking skills than students in the 13 other MLTT-funded courses. Data on creative thinking skills are illustrated in Figure 1. Chance, Barber, and Marshall will discuss such prior findings and extend that work by describing statistical significance of the results and findings of the qualitative analysis of textual data collected during the *SmartSurfaces* course.

Discussion

More research on learning outcomes related to PBL is needed. A recent empirical study by Yadav, Subedi, Lundeberg, and Bunting (2011) found that among 55 electrical engineering students, "learning gains from PBL were twice their gains from traditional lecture" (p. 253). Dym, Agogino, Eris, Frey, and Leifer (2005) identified at least 16 U.S. universities that have been incorporating PBL pedagogies to teach first-year engineering students. Such trends are consistent with National Science Board (NSB, 2007) mandates to make engineering education more engaging and more relevant to students—and to produce graduates who can respond to society's quickly changing needs. Participants in this session will be encouraged to share their own experiences with PBL from the perspectives of teachers, learners, and researchers.

Figure 1. Development of Creative Thinking Skills: Comparison of MLTT and *SmartSurfaces* (SS) students.

References

Barber, J. P. (2009). Integration of learning: Meaning making for undergraduates through connection, application, and synthesis. (Doctoral dissertation). University of Michigan, Ann Arbor, MI. (UMI Number 3354010).

Belhot, R. V., Guerra, J. H. L., & Kuir, N. P. (1998). *Problem-based learning in engineering education*. Paper presented at the International Conference of Electrical Engineers.

Bierwert, C., Olds, K., & Barber, J. (2010). *Student assessment of learning in Multidisciplinary Learning and Team Teaching (MLTT) courses. Report of a survey of students in fourteen MLTT-funded courses to the MLTT Steering Committee, Ben van der Pluijm, Chair.* Ann Arbor, MI: University of Michigan Center for Research on Learning and Teaching.

Duffy, G. & Bowe, B. (2010). *A framework to develop lifelong learning and transferable skills in an engineering programme*. 3rd International Symposium for Engineering Education. University College Cork, Ireland.

Dym, C. L., Agogino, A. M., Eris, O., Frey, D. D., & Leifer, L. J. (2005). Engineering design thinking, teaching, and learning. *Journal of Engineering Education, 34*(1), 103-120.

Marshall, J., Shtein, M., & Daubmann, K. (2011). *SmartSurfaces: A multidisciplinary, hands-on, think-tank*. Presented at the Association of Collegiate Schools of Architecture annual Teachers Seminar.

Yadav, A., Subedi, D., Lundeberg, M. A., Bunting, C. F. (2011). *Journal of End. Education,100*(2), 253-280.

Video Data Analysis for Classroom and Teacher Observation

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Abstract: In an effort to determine effective teaching techniques with students in the university setting, The Observer XT provides an outlet for tracking and grouping non-verbal behaviors in a social science setting. This work demonstrates how systematic observation software, such as The Observer XT, can be used to organize and manage video files for tracking of behaviors, non-verbal cues, and facilitate the comparison of video to observations, interviews, quantitative analysis and other means of data collection. This research illustrates how The Observer XT is being utilized by multiple departments in a wide variety of research projects. The integration and synchronization of The Observer XT with other data collection measures allows the researcher to make more informed decisions and cross reference data points to see where correlations exist or data does not agree. Collecting data in the classroom has always been a challenging task for research observers, keeping up with the pace of activity. Observer XT will be shown as a support tool for all stages of research. The use of tutorials, assistance from the AEE Teaching and Learning Laboratory, and mock runs will increase the product quality of the research project.

Introduction

Video observation can allow researchers to explore a phenomenon at an in-depth level by offering the ability play and replay or look for specific behaviors in a group of participants. Combined with qualitative inquiry, the researcher can provide a rich and detailed account (Rossman & Rallis, 2003). Video can enhance research by providing verbal and visual representations and software such as The Observer XT can help sort through short segments of video data to provide insight and help provide guidance to the researcher on data analysis (Snell, 2011). In this review of literature, we will discuss The Observer XT as a tool to aid in coding, management and analysis of observational data (Snell, 2011). We will also highlight key features of the software and ways that we are implementing it in social science research. The Observer XT allows the researcher to integrate video to code and describe in an accurate and quantitative way, and develop a coding scheme to use over multiple fields of video (Ouwerkerk, 2011).

Conceptual Framework

The Observer XT has been implemented in animal behavior research extensively and is now being shown useful in the social science and educational research fields. Implications of use, to collect rich detailed observational data, addressing the question we as educators have: what are best pedagogy practices? The Observer XT being used as a tool to assess experiential learning theory by observing student engagement and reactions to teaching practices that are missed using traditional data collection methods.

Using experiential learning as the framework for research on best practices and uses of The Observer XT software and Teaching and Learning Lab facilities focuses on some basic principles. Experiential learning emphasizes experience, perception, cognition, and behavior (Kolb, 1984). Connecting experiences to what is already known and interaction with the environment while testing hypotheses defines the process of learning to use and implement the Observer XT Software. The cyclical and ongoing flow of meaning making throughout the process of research design and implementation focuses on the desired outcome and the role of the researcher. Knowing that people learn from experience helps enhance The Observer XT as a software package with the goal of using existing video data to observe for non-verbal behaviors and cues that would otherwise be undetectable to the naked eye.

Methodology

Through modeling, guided practice, collaboration, and reflection, Observer XT users will be able to understand how it can be integrated into existing research methods. The lab encompasses sophisticated video equipment, a full set of laptops, and supporting software including The Observer XT from the Noldus Corporation. It is best learned through experiential processes and integrating guided practice through tutorials, one-on-one practice sessions, and experimental set-ups using existing video. The next step, after self –discovery, was guided practice using footage from previous research projects in a simulated manner with expert assistance. These mock runs of the software are

informative, but lack the background understanding brought in with prior learning. The final practice consists of running footage from meaningful experiences and analyzing data from a newly constructed design to connect the functions together as a working whole. During the process of testing and developing projects, working collaboratively with other departments allowed for observation of uses and technical trouble-shooting.

Findings

Observer XT has been used in the field of social science based inquiry. Some of the venues of use have been: psychology, crime, and law observing mock jury deliberations, professional development training in teachers, online learning behaviors, technology integration in the classroom, food science applications, and marketing (Ruva, 2011, Rudd, 2009, Arcand, 2009, Drape, 2011). Research at Virginia Tech, specifically in collaboration with other departments, has assisted in developing a comprehensive user friendly manual and a format for introducing new users to the software. Partnerships with the Food Science Department have allowed both departments to use and learn more about the capabilities of the software through observations involving chemotherapy patients to metallic taste. Environmental aspects such as lighting, positioning, mobility of lab, and reliability have been addressed and systematically through trial and error allotted for in research design. The Agricultural and Extension Education Department has integrated the software into several research projects including a case study of technology integration in an Agriculture Associate's Degree program (Drape, 2011). The department has been fortunate to consult with other departments to help them integrate video analysis into research projects, dissertation studies, and in the future, hopes to expand with other partners. The Noldus software has been found useful in capturing moments and behaviors which can go missed with traditional observational methods.

Discussion

Using both published research that has included Observer XT in analysis of data within a diverse population of disciplines and research conducted by Faculty and Students at Virginia Tech using the Agricultural Extension Education Teaching and Learning Laboratory, uses and implications of software will be demonstrated visually. Workable examples of settings and research topics will be discussed and explored within the social sciences. Collecting data in the classroom has always been a challenging task for research observers, keeping up with the pace of activity. Observer XT will be shown as a support tool for all stages of research: including setting up experimental design, coding, observing behaviors, visualizing, selecting, analyzing data, and organizing data (Edyburn, 2008). The importance of expert assistance, obtained through the AEE Teaching and Learning Laboratory, in the design implementation and use of software, is illustrated by the success Virginia Tech faculty and students have experienced with the Observer XT software.

References

Arcand, I., & Ducharme, D. (2009). Using Noldus Observer XT for research on deaf signers learning to read: An innovative methodology. *Behavior Research Methods*. 41(3), 833-840.

Edyburn, D. (2008). Research and Practice: Collecting and Coding Observational Data. *Journal of Special Education Technology*. 23(2): 56-60.

Fenwick, T. (2003). *Learning Through Experience*. Krieger Publishing Company.

Kolb, D. (1984). *Experiential learning: experience as the source of learning and development*. Prentice Hall.

Ouwerkerk, N. (2011). *The Observer XT*. Retrieved September 26, 2011, from http://www.noldus.com/human-behavior-research/products/2/the-observer-xt

Rossman, G., & Rallis, S. (2003). *Learning in the Field: An Introduction to Qualitative Research* (Second ed. ed.). Thousand Oaks: Sage Publications, Inc.

Rudd, L., Lanbert, M., Satterwhite, M., & Smith, C., (2009). Professional Development + Coaching = Enhanced Teaching: Increasing Usage of Math Mediated Language in Preschool Classrooms. *Early Childhood Education*. 37, 63-69. doi:10.1007/s10643-009-0320-5

Ruva, C., LeVasseur, A., (2011). Behind closed doors: the effect of pretrial publicity on jury deliberations. *Psychology, Crime & Law*. doi: 10.1080/1068316X.2010.502120

Snell, J. (2011). Interrogating video data: systematic quantitative analysis versus micro-ethnographic analysis. *International Journal of Social Research Methodology*, 14(3), 253-258.

Drape, T. A. (2011). *Teaching with Technology in an Agriculture Associate's Degree Program*. Doctoral dissertation. Virginia Tech, Blacksburg, VA.

Virtual Interactive Construction Education: A Project-Based Pedagogical Model for Construction Engineering and Management

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Abstract: This presentation reports on the ongoing research examining the potential of the first project-based simulation module developed at the Durham School of Architectural Engineering and Construction at the University of Nebraska called Virtual Interactive Construction Education (VICE)-Bridge. VICE places undergraduate students in construction engineering and management in the full context of the construction environment by delivering the traditional subject-based topics in a project-based curriculum delivered in a virtual environment using cyberinfrastructure tools. Student learning is engaged as necessary to develop solution sets to problems in each module within specific parameters such as limited resources and/or time constraints. Levels of participant engagement are measured using qualitative evaluation techniques while the level of practical construction knowledge is collected within the simulation module. Positive results from the first project-based module will provide evidence to support a pedagogical model that replaces the traditional subject-based delivery method with a project-based curriculum.

Literature Review

Contextually rich interactive simulations have proven effective at improving the educational experience in fields like health care and military operations. Safety and skills were both improved when using simulations in surgery (Kneebone, 2003), anesthesiology (Abrahamson, Denson & Wolf, 2004) and laparoscopic and cardiovascular techniques (Issenberg and Scalese, 2008). The younger generations are shown to learn more efficiently when using simulations in the army (Walker, 2009). Tashiro (2009) indicated that much more needs to be done regarding the educational benefits of serious games and simulations. Serious games are those whose primary goal is education (deFreitas, 2006). Harz (2009) wrote of the high potential of serious games in education but also indicated that the availability is extremely low. Concrete methods for measuring the effectiveness of simulations and/or serious games can be elusive. Lincoln & Guba (1985) described a method of quantifying qualitative data using the Constant Comparative Method of Qualitative Analysis and descriptive statistics. Kardynal (2009) described an evaluation design for case studies.

Methodology

This research seeks to measure student engagement and level of practical construction knowledge. The central hypothesis is that: *VICE Bridge, a virtual project-based learning tool, provides an effective learning environment for undergraduate construction education.* Data is collected using a convenience sample of 40 undergraduate construction engineering and management students, 40 high school juniors, and five industry professionals. Participants are given directions to log onto the VICE-Bridge module and allowed several hours to play the game in a controlled environment. Evaluation data is collected within the simulation itself to measure level of practical construction knowledge. Student engagement is measured by systematic observation of the participant. In addition they are asked to complete a retrospective version of the Student Assessment of Learning Gains (SALG). SALG is an on-line survey assessment to measure the students' own perception of their learning gains. Qualitative data will be quantified where feasible using descriptive statistics and Constant Comparative Method of qualitative analysis.

Results

The VICE-Bridge module was presented to two industry professionals with bridge construction background and three academicians with expertise in simulation. This Advisory Committee review was facilitated by the external evaluator. Overall, initial feedback indicate that the project is worthy of continued development. The Committee noted that current limited resources allow for only a minimally realistic simulation. It was recommended that a single scenario be expanded with more realism and depth of content. The resulting project will likely be a valuable "proof of concept" that will clearly demonstrate what is possible with further iterations and funding. Furthermore, learning from this project should provide strategies for transfer of concept to other content areas, such as residential

construction. A version of the module will be ready for Beta testing with undergraduate students in the Construction Engineering and Management programs in spring 2012. A second piloting is scheduled for the summer 2012 with high school juniors in the Academy of Excellence.

Discussion

Successful development and testing of the VICE-Bridge module will provide the basic educational framework necessary to develop more effective learning tools for construction concepts in post-secondary educational programs. Five additional project-oriented modules will need to be developed and the curriculum modified to accommodate a project-based delivery. There are a number of technical, curricular, political and practical factors that could emerge that may inhibit implementation of a project-based construction curriculum. A significant constraint is related to accreditation requirements. Accreditation for construction engineering is typically Engineering Accreditation Commission of the Accrediting Board for Engineering and Technology while accreditation for construction management is typically American Council for Construction Education. While neither accrediting body is so limiting as to exclude a project-based delivery, it is not yet known if they will look favorably on such a radical departure from the norm. Topics within a subject-based curriculum including methods, materials, estimating, scheduling, project management, equipment, and safety were mapped from existing accredited programs in both construction engineering and construction management to six projects. Six projects were selected to coincide with six semesters and include: a single span bridge, a single family residential house, highway, light commercial building, heavy commercial building and a segmental bridge.

References

Abrahamson, S., Denson, J. S., & Wolf, R. M. (2004). Effectiveness of a simulator in training anesthesiology residents. *Quality & Safety in Health Care [Qual. Saf. Health Care]. Vol. 13,* no. 5, 395.

deFreitas, S. (2006). Learning in immersive worlds: A review of game-based learning. *Joint informational Systems Committee report.* Retrieved from http://www.jisc.ac.uk/eli_outcomes.html.

Harz, C. (2009). Serious game opportunities. *Animation World Network*, Retrieved from http://www.awn.com/blogs/animated-travels/gdc-2009-serious-games-opportunities

Issenberg, S., & Scalese, R. J. (2008). Simulation in health care education. *Perspectives in Biology & Medicine, 51*(1), 31-46.

Kardynal, J. (2009). The potential of serious games for teaching construction technologies: A case study. *University of Saskatchewan Library Electronic Theses & Dissertations.*

Kneebone, R. (2003). Simulation in surgical training: Educational issues and practical implications. *Medical Education, 37*(3), 267-277.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage.

Tashiro, J. (2009). What really works in serious games for healthcare education. *Proceedings of the 2009 Conference on Future Play on @GDC Canada*, Vancouver, British Columbia, Canada, Session: Games in education & Serious Games, 3-4, ISBN: 978-1-60558-685-4, ACM, New York, NY, USA.

Walker, K. (2009). U.S. army adds gaming to training manual. *DefenseNews, March 12, 2009.* Retrieved from http://www.trainingmag.com/article/us-army-adds-gaming-training-manual

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360° Review for Quality Student-Generated Content

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Abstract: This presentation focuses on the benefits of large multi-team projects to construct content that will be useful to other students. When multiple authors collaborate on a large project, quality control is very important. The instructor/editor rarely has time enough to review each contribution multiple times until it measures up. This task can be accomplished in divide-and-conquer fashion by engaging the students. Students select a topic from a list provided by the instructor. After they submit their work, it is peer-reviewed by other students. Students revise and resubmit their work, and their reviewers are given another chance to evaluate it. Later, another student or the instructor evaluates the quality of the student's review. Teammates evaluate each other's contributions to the project. Our open-source Expertiza platform offers rubric-based reviewing and metareviewing capability, teamwork and team-member evaluation—true 360° assessment.

Literature Review

Exams are an imperfect indicator of how well students can apply their knowledge. In an effort to educate for real-world tasks, higher education is turning increasingly to team projects. But assessment is a challenge, especially when students are working on *different* projects that are not directly comparable. Industry faces the same need, and has responded by developing 360-degree assessment (Craig & Hannum, 2006; Lepsinger & Lucia, 2009). Employees are evaluated not only by their superiors, but also by their peers, customers, and other stakeholders. This assures that the evaluation is based on several different perspectives, and no single individual can influence it too strongly.

Surprisingly little, if any, research has been done on 360-degree assessment of students, though there is a modicum of interest in 360-degree assessment of instructors, via student evaluations and peer evaluations (Waldman, Atwater, & Antonioni, 1998). Students *could* be assessed in several ways: by their *instructor* and/or teaching assistant, by their *teammates* (if the assignment is a team assignment), and by their *peers*. If the students are producing material designed to be used by other students (e.g., worked-out examples), they can also be evaluated by the *consumers* of the information they have constructed. Moreover, 360-degree assessment is more *authentic* (Wiggins, 1990),

Figure 1. An Expertiza signup sheet

because the tasks are similar to real-world tasks and the performance metrics resemble those used in the outside world. By contrast, traditional exams are, in Wiggins' words, "efficient, simplistic substitutes from which we think valid inferences can be made about the student's performance at those valued challenges."

Methodology

We have built an open-source assessment system called Expertiza (Gehringer, 2009). It has demonstrated its usefulness by facilitating creation of problems and exercises for an in-press textbook on object-oriented design (Gehringer, Ehresman, & Skrien, 2006), active-learning exercises for a CS 2 programming class (Gehringer & Miller, 2009), and mediating the creation of student-authored wiki textbooks (Gehringer, 2011).

Expertiza allows the instructor to set up a "signup sheet" of topics that students may choose to work on (Figure 1). A student (or team of students) may select any topic that has an open "slot." The student or team then does the assignment and submits one or more files (or URLs) to Expertiza.

The students' submissions are then reviewed by other students. Depending on how the instructor has set up the assignment, a student is either presented with a specific submission to review, or chooses a topic to review on, and is then presented with a submission on that topic. The student fills out a review rubric (Figure 2), typing a comment into the text box associated with each question, and assigning a score. The author then logs in and views the student's review. The author may then submit feedback to the reviewer, using another rubric designed for the purpose. If it is a team assignment, teammates can review each other's contribution. Finally, a third party can be assigned to *metareview*, or evaluate, a review performed by one student on another student's work. The instructor sees summary all of this feedback on a single screen (Figure 3), and can browse this information when assigning a grade to the student.

Figure 2. A review rubric

Figure 3. Summary of feedback for instructor

This session will serve to introduce the Expertiza platform, but we will also illustrate how much of the functionality can be achieved by more generally available tools like Google forms. We will do a short demo of the system, which participants will be encouraged to join in from their laptop or other wireless device. Participants will come away from the session with (1) a knowledge of how students can collaborate to produce large artifacts, such as wiki textbooks, (2) an appreciation of how 360° assessment support the process, and (3) an awareness of tools they can use to bring these methodologies to their own classes.

References

Craig, S. B., & Hannum, K. (2006). Research Update: 360-Degree Performance Assessment. *Consulting Psychology Journal: Practice and Research*, 58(2), 117-124.

Gehringer, E. F. (2009). Expertiza: information management for collaborative learning. Monitoring and Assessment in *Online Collaborative Environments: Emergent Computational Technologies for E-Learning Support (A. A. Juan Perez* [ed.].). IGI Global Press.

Gehringer, E. F. (2011). *Experience with software support for managing student-authored wiki textbooks*. Presented at the American Society for Engineering Education Annual Conference, Vancouver, BC: ASEE.

Gehringer, E. F., & Miller, C. S. (2009). *Student-generated active-learning exercises* (pp. 81-85). Presented at the SIGCSE 2009, Fortieth Technical Symposium on Computer Science Education, Chattanooga, TN: ACM.

Gehringer, E. F., Ehresman, L. M., & Skrien, D. J. (2006). *Expertiza: students helping to write an OOD text*. OOPSLA 2006 Companion. Presented at the OOPSLA 2006 Educators' Symposium, Portland, OR: ACM.

Lepsinger, R., & Lucia, A. D. (2009). *The Art and Science of 360 Degree Feedback*. John Wiley and Sons.

Waldman, D. A., Atwater, L. E., & Antonioni, D. (1998). Has 360 Degree Feedback Gone Amok? *The Academy of Management Executive* (1993-2005), 12(2), 86-94.

Wiggins, G. (1990, December). The Case for Authentic Assessment. *ERIC Clearinghouse on Tests Measurement and Evaluation*: ERIC ED328611.

A First Year Experience Team-Based Interdisciplinary Research Project

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Abstract: First Year Experience programs have been in existence since the 1970s, with courses being of differing credit hours, of different content, but similar in class size with the majority of courses having a student enrollment of 25 (Tobolowsky, Cox, & Wagner, 2005 and Griffin & Romm, 2008). Six departments in Virginia Tech's College of Agriculture and Life Sciences developed an interdisciplinary First Year Experience course designed to meet the needs of a large number of first year students while incorporating learning objectives from Virginia Tech's Quality Enhancement Plan as well as learning objectives for the departments. Learning objectives and student needs were met through the development of a semester-long group research project. The project was interdisciplinary in nature, and included the learning objectives of problem solving, inquiry, integration of learning, connecting to students and faculty, teamwork, information literacy skills, communication skills, and interdisciplinary understanding.

Literature Review

The Freshman Year Experience began in 1974 at the University of South Carolina as a result of student turbulence during the 1960's (Watts, 1999). There is now a long-standing existence of First Year Experience (FYE) programs throughout the United States and many other countries. Tobolowsky stated that "seminars may be academic, extended orientations, basic study skills, or a bit of all the above" (2008). In a review of 61 First Year Experience programs, differences were noted in number of credit hours, whether the course was required or an elective, and the content and type of course. The one similarity noted in 57 of the 61 courses was small student enrollment per class Nearly 73% of the programs reviewed enrolled 20-25 students per section while 25% of programs enrolled less than 20 students per section (Tobolowsky, Cox, & Wagner, 2005 and Griffin & Romm, 2008). Only one program reported a large enrollment (n=170) however this course was a 3-credit course that meet twice each week in the large section and once each week in sections of 22 students (Tobolowsky, Cox, & Wagner, 2005). Given the current condition of limited resources and tightly structured curriculums, departments and colleges must consider ways to build effective learning environments in a large classroom without adding additional credit hours required for the degree.

Goals and Objectives for the Practice Session

This practice session will focus specifically on a semester-long group project designed to meet the learning objectives of a *Pathways to Success* course while providing department and college content to large numbers of students. The objectives for this practice session are to (a) discuss the logistics of developing an interdisciplinary group project, (b) design a group project that meets multiple learning objectives, and (c) create a stepwise progression of the group project.

Description of the Practice to be Modeled

Six departments in the College of Agriculture and Life Sciences developed a 1-credit *Pathways To Success* First Year Experience course. The group project was designed to meet three primary learning objectives of problem solving, inquiry, and integration. As the group project was developed, other learning objectives were identified which included connecting to other students and faculty, teamwork, information literacy skills, communication skills, and interdisciplinary understanding.

Students were divided into 29 interdisciplinary groups made up of 5-8 students. All groups were assigned a peer leader who helped facilitate each step of the group project. The group project was divided into 6 parts and 8 separate assignments which spanned the semester so that group and peer leader communication persisted throughout the class. At the beginning of the semester each group selected a question from a list of CALS-related questions. These questions were modeled after *There's a Heifer in Your Tank: Quirky Questions* (Penrice, Robinson, & Zuidhof, 2011) to enhance students' interest in the topic. Groups completed a first essay answering their selected question

based on their knowledge, ideas, and opinions at the time. Throughout the semester students completed multiple assignments which required them to find scholarly literature on the question. The final essay was written based on their research rather than their opinions. As the final assignment of the class each student completed an Individual Statement of Learning to explain how their knowledge changed as a result of utilizing information literacy skills, communicating with group members in other departments, and analyzing the research they conducted themselves. Because this course was part of a research study, qualitative data from the course and group project will be discussed.

Acknowledgements

References

Watts, E. (1999). The Freshman Year Experience, 1962-1990: An experiment in humanistic higher education. (Doctoral Dissertation). Retrieved October 1, 2011 from National Resource Center for the First-Year Experience and Students in Transition. http://sc.edu/fye/resources/fyr/pdf/FYEHistory_ElsieFroment.pdf

Tobolowsky, B. (2008). Foreword. In Griffin, A.M., & Romm, J. (Eds.). (2008). *Exploring the evidence, vol. IV: Reporting research first-year seminars* (5-6). Columbia, SC: University of South Carolina, National Resource Center for The First-Year Experience and Students in Transition.

Tobolowsky, B. F., Cox, B. E., & Wagner, M. T. (Eds.). (2005). *Exploring the evidence: Reporting research on first-year seminars, Volume III* (Monograph No. 42). Columbia, SC: University of South Carolina, National Resource Center for The First-Year Experience and Students in Transition.

Griffin, A.M., & Romm, J. (Eds.). (2008). *Exploring the evidence, vol. IV: Reporting research first-year seminars*. Columbia, SC: University of South Carolina, National Resource Center for The First-Year Experience and Students in Transition. Retrieved January 10, 2011 from http://www.sc.edu/fye/index.html

Penrice, D., Robinson, F., & Zuidhof, M. (2011). *There's a Heifer In Your Tank: Answers to the questions you never knew you had about agriculture.* Edmonton, AB: University of Alberta. Retrieved April 18, 2011 from http://www.heiferinyourtank.ca/

A Trail of Breadcrumbs: Writing Effective Data-Rich Team Activities Designed for Reinforcing Factual Content

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Abstract: Active-learning methods such as "team based learning" (TBL) are gaining widespread attention and praise in higher education. However, transitioning from traditional lecture-based formats can be daunting. Often the most difficult obstacle in the adoption of TBL is in the writing of effective and engaging classroom exercises. This can be particularly true for instructors of novice learners in the natural sciences, for which applications must reinforce highly factual course content that does not readily lend itself to debate and/or discussion. This presentation will provide a team activity model that uses data analyses to facilitate critical thinking, group discussion, and ultimately the reinforcing of facts. In such data-rich activities, students are led through a role-playing scenario with a learner-relevant theme. Along the way, students employ facts to decipher datum presented as graphical or anecdotal evidence. The information gleaned forms a trail of breadcrumbs leading students through the activity and ultimately to a solution. Participants will learn how to write as well as explore the benefits and potential pitfalls to using activities of this design. Presenters will share results of their comparative study of the use of lecture versus data-rich activities in their undergraduate mixed majors Biotechnology course.

Goals & Objectives

Upon completion of the session, participants will:
1. Outline the creative and formative steps of writing structured team activities that employ data analyses to reinforce factual course content.
2. List 4-5 general or specific sources of inspiration for activity themes.
3. List and describe multiple examples for which data presentation can be used to reinforce facts and/or for simultaneous team reporting.
4. Appreciate 'bonus' critical/logical thinking skill development that comes from the implementation of data analysis in team activities.
5. Anticipate potential obstacles in the implementation of data-rich activities.

Validation and Description of Practice

This session will be conducted using a mixed format resembling "team based learning" and writing workshops.

The workshop will commence with a brief summative literature review pertaining to the effectiveness of active learning pedagogies. Many of these pedagogies, like Team-Based Learning (TBL), emphasize application of concepts rather than recall of facts. TBL, as laid out by Michaelsen *et al.* (2004), redirects the role of the professor from a didactic lecturer to a guide for individual and team-driven learning (L. Michaelsen, Knight, & Fink, 2004). In TBL, students assimilate all course material prior to attending class through reading assignments and homework problems. Valuable classroom time is then available for team application exercises designed to foster higher-order thinking and analysis of course concepts (L. Michaelsen *et al.*, 2004). The traditional unidirectional instructor-to-student interaction is replaced by vigorous discussion and decision-making within and between student teams (Kelly *et al.*, 2005; L. Michaelsen *et al.,* 2004; L. K. Michaelsen, 2005).

The National Research Council and National Science Foundation praise active learning and integrated teamwork as essential components to today's science education. More specifically, TBL has proven effective in undergraduate biology/microbiology courses at both the upper level (McInerney & Fink, 2003) and introductory level (Carmichael, 2009). A recent paper in *Science* by Haak *et al* (2011) indicated that active learning in an introductory biology course was particularly beneficial for disadvantaged students, placing even greater importance on the incorporation of active learning into these courses.

A variety of styles of active learning application exercises will be presented and reviewed, the discussion concluding with the new format presented here—data-rich activities. A writing workshop will ensue. The process of writing

data-rich team activities will be broken down into steps and elaborated upon. Participants will work through each step, first identifying the content and theme, selecting an introduction style, writing an outline and series of open-ended questions, reviewing and identifying places to employ various data representation methods, and finally transforming questions to enhance complexity and spontaneous reporting.

Discussion

The facilitators will conclude the workshop with student responses to data-rich activities (e.g. "It was very challenging, but the material stuck with me, which no other science course has done for me before."; "You'll work hard but you'll learn a ton.") as well as report performance and attitude data from their lecture versus TBL (with data-rich activities) comparative study of an undergraduate mixed-majors Biotechnology course. Results will be placed in the context of previously published findings. Experiential anecdotes will be used to highlight common obstacles to the implementation and use of data-rich activities. The necessity for and ways to facilitate student buy-in will be discussed. Here, and throughout the workshop, participants will be encouraged to grapple with difficult questions, discuss anticipated challenges, and share relevant experiences.

The following questions will be posed and discussed:
- What "bonus" skills (i.e. those that are not directly related to the content of the exercise) arise from data analyses? How does these skills align with the goals of your course/ general education-type program/ college or departmental mission statements?
- How is the factual content of your course important to the *learner*? How might someone use this information to solve a problem that is important to the *learner*?
- What student populations are best suited for data-rich activities, open-ended case study questions, etc.?
- How might one transform open-ended questions into something more structured yet requiring similar levels of depth of analyses/critical thinking?

References

Michaelsen, L. K. (2005). Commentary: Drawing conclusions from the team-learning literature in health-sciences education: A commentary. *Teaching and Learning in Medicine, 17(1),* 85-88.

Michaelsen, L. K., Knight, A., & Fink, L. D. (2004). *Team based learning: A transformative use of small groups in college teaching*. Stylus Publishing.

Kelly, A., Haidet, P., Schneider, V., Searle, N., Seidel, C., & Richards, B. (2005). A comparison of in-class learner engagement across lecture, problem-based learning, and team learning using the STROBE classroom observation tool. *Teaching and Learning in Medicine, 17(2),* 112-118.

McInerney, M. J., & Fink, L. D. (2003). Team-based learning enhances long-term retention and critical thinking in an undergraduate microbial physiology course. *Journal of Microbiology & Biology Education, 4*

Carmichael, J. (2009). Team-based learning enhances performance in introductory biology. *Journal of College Science Teaching, 38(4),* 8.

Haak, D. C., HilleRisLambers, J., Pitre, E., & Freeman, S. (2011). Increased structure and active learning reduce the achievement gap in introductory biology. *Science, 332(6034),* 1213-1216.

Accommodation for Visual Impairment in Introductory Physics at Virginia Tech

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Abstract: The introductory physics curriculum at Virginia Tech and elsewhere poses a rich set of challenges to students who are visually impaired. First, much of the material is conveyed to the students using illustrations: graphs, force and field diagrams, sketches, cartoons, and photographs. These illustrations are often annotated to some degree, thereby increasing their complexity. For example, the textbook material and lecture slides in the first semester of PHYS 2305 embody over 1100 images. Second, physics makes use of equations to convey symbolic and numerical relationships among two or more measurable quantities. These are interspersed in the body of the textbook and on the lecture slides, and make use of technical symbols from mathematics and the Greek and Roman alphabets. Third, students are assigned work to be completed in and out of class that requires access to an online homework system provided by the textbook publisher. The development and maintenance of these homework systems are often guided by concerns other than accessibility for students with visual disabilities. I will discuss how Assistive Technologies and the Physics Department have cooperated in addressing the above challenges during Fall 2011 and Spring 2012 in creating a learning environment for introductory physics that is comparable - and as close to equivalent as is practical - to that experienced by the sighted student.

Action Research: Integrating Service Learning With Academic Inquiry

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Abstract: Ut Prosim – that I may serve, is the motto of Virginia Tech. With this mission in mind, two Communication classrooms integrate Service-Learning into the curriculum of student learning. This practice session will demonstrate how service learning can be used to enhance the learning of theory-based instruction in the classroom. Students apply their experiences in a local service-learning site to the dialogue of theory in the classroom. This pedagogy allows students to connect theory to real-world application watching with amazement as theory comes to life before their eyes as they help meet vital community needs, and become responsible and engaged citizens (Points of Light, 2002).

Literature Review

Promoting the idea of service learning to college students is typically an easy sell—until students realize that this commitment will cut into their valuable free time. Integrating service-learning opportunities into the classroom experience allows students to envision their efforts as part of their coursework, rather than a drain on time for extracurricular activities or, heaven forbid, Facebook.

"A disturbing trend in college student health is the reported increase in student stress nationwide" (Sax, 1997). Since time management is one of the greatest challenges of today's college students resulting in stress, encouraging these budding professionals to give back to the local community renders benefits on many levels, including academic and personal satisfaction. Stepping outside the cocoon of the Virginia Tech campus, students encounter individuals who hail from backgrounds far different than their own—and ones who are greatly appreciative of the time these students earmark each week for personal interactions or to assist in completing tasks. These first steps of giving back are essential because we know that "change happens little by little, step by step" (Loeb, 2010).

The importance of 'placement fit' albeit to select a venue and activity for service learning that resonates with a student's personality or one that pushes that student out of her/his comfort zone fosters an immediate sense of "claim" to that endeavor (Sandy, 2007). Since the student ultimately made the decision to work with a particular agency or perform a certain type of task, a sense of pride begins to germinate as the student gains a deeper understanding of the needs that can be met via students supplying their time and energy. Resulting in "citizens who can acquire the habits of civic participation, responsibility, and service that are essential to American democratic life" while responding to the call to VT students of Ut Prosim (Points of Light, 2002).

"Service-learning is an approach to teaching that involves student community service as a means for achieving academic goals." Service-learning can be seen as "action research" where "theories guide outcomes." (Billings & Furco, 2002.) In both the Communication Skills and Interpersonal Communication classrooms, students define their service learning activity based on the academic purpose of the course.

Goals and Objectives for the Practice Session

As at result of this session, participants will:
1. Gain knowledge on how to match student to site,
2. Learn strategies for integrating theory with the service learning experience,
3. Understand how to draw feedback from students on their experiences, and
4. Hear voices of student experiences in service learning.

Description of the Practice to be Modeled

Interpersonal Communication: Each student in Interpersonal Communication is required to complete 25 hours of service learning over the semester at a local site [sites are selected through the VT CSECP]. Reflective papers are written throughout the semester that must demonstrate the theory and concepts of Interpersonal communication as connected to their hands-on experiences. In addition to frequent in-class report-outs where students share day to day

experiences, two oral presentations are given: (1) with a group of students in class that are serving at a similar site, and (2) an individual capstone presentation connecting real–world experience to Interpersonal theory.

Communication Skills: Students in CommSkills are required to complete 15 hours of service learning over the semester. They are placed in small groups and serve at a selected site via VT CSECP throughout the semester. They share their experiences with one another; record experiences through Journaling, and in a group presentation at the end of the semester connect their service to the class through personal story and research.

Discussion

After five years of weaving service learning into the requirements for Communication Skills and Interpersonal Communication, we have realized that we are not only teachers, but mentors. Robert Coles (1993) grapples with this idea when he discusses the topic of mentoring as "a unique type of relationship that transcends teaching or helping." Our students comments' have consistently supported the concept that devoting time to the various agencies in the New River Valley and its outlying areas for service learning has been enriching and worthwhile. The recurring message is that the time sacrificed to participate in service learning opened new doors in terms of the college experience—one that students gladly would walk through again, given the opportunity. By connecting theory with experience the minds of students are opened to the application of concepts into real life situations and they begin to truly learn, understanding the theories at hand. Faculty who use service learning discover that it brings new life to the classroom, enhances performance on traditional measures of learning, increases student interest in the subject, teaches new problem solving skills, and makes teaching more enjoyable (Bringle & Hatcher, 1996).

References

Billig, S., & Furco, A. (2002*).* Service-learning through a multidisciplinary lens (HC). *Advances in Service-Learning Research*, V 2. Information Age Publishing.

Bringle, R. G., & Hatcher, J. A. (1996). Implementing service learning in higher education. *Journal of Higher Education*, Vol. 67, No. 2. Ohio State University Press.

Coles, R. (1993). *The call of service.* Houghton-Mifflin Company.

E-volunteerism.com. (2011). *E-Volunteerism: The electronic journal of the volunteerism community.* Energize.com. Philadelphia, PA.

Furco, A. *(1996). Service-Learning: A Balanced Approach to Experiential Education. Expanding Boundaries: Service and Learning. Corporation for National Service.*

Loeb, P. (2010). *Soul of a citizen: Living with conviction in challenging times.* St. Martin's Press.

Points of Light Foundation, (2002). Students in Service to America: A Guidebook for Engaging America's Students in a Lifelong Habit of Service. Corp for National and Community Service: UDSE: US Dept. of Education.

Sandy, M. (2007, April). *Community voices: A California campus compact study on partnerships.* California Campus Compact.

Sax, L. J. (1997). Health trends among college freshmen. *Journal of American College Health*, 45(6), 252-262.

Advancing Distance Learning at Virginia Tech

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Abstract: The Institute for Distance and Distributed Learning (IDDL) provides advocacy, validation, empowerment, and support to Virginia Tech's eLearning efforts. In order to best represent the university's interests The Institute for Distance and Distributed Learning adopted Virginia Tech's University Distance and Distributed eLearning Strategic Plan as its own departmental strategic plan. Using strategic goals of IDDL and those of the larger university, IDDL has amended its mission by providing a comprehensive plan for meeting the distance learning needs of the Virginia Tech community.

Distance learning, or eLearning, is transforming education around the globe by allowing students the opportunity to learn anytime and anyplace, while simultaneously gaining access to the world and the world gaining access to them. Furthermore, distance learning is an integral component of higher education which, when effectively used, can expand access, improve quality, and minimize the cost of education by allowing for efficient use of resources. Through distance education, Virginia Tech has been able to expand its educational reach to learners all around the world. As a strategic effort Virginia Tech established the IDDL in 1998 to move the university forward in all distance learning efforts. As advocates for distance learning, IDDL has worked with administrators and faculty from across campus to identify specific needs. IDDL uses research-based strategies to inform distance learning practices, online course design, and faculty professional development and support. Using needs-based planning strategies, distance learning opportunities have become more meaningful and relevant for all stakeholders.

In order to provide students effective strategies for success, instruction must be designed based on student needs. In addition, courses must be designed to enhance interaction and social presence for students to feel satisfied with the overall course experience and connected with the institution, the instructor, and their peers (Gunawardena and Zittle, 1997; Chickering and Ehrman, 1996). Research indicates that if online course design and delivery is grounded in learner centered theory then students can effectively engage with and master course content (Swan, 2005). Online pedagogy requires thinking about how to facilitate interactions between students as well as getting students to engage with the course content through electronic mediums (Ingram, 2005). Learning experiences that are designed to promote purposeful collaboration between students and those that utilize multiple methods to deliver content as well as assess the transfer of knowledge are more likely to see increased gains in student learning (Moore, 2008).

Online instructors have identified many impediments to online course delivery. In addition, support opportunities that would assist faculty in delivering courses online provided by higher education often fall short of faculty expectations (Association of Public and Land-grant Universities-Sloan National Commission on Online Learning, 2009). As a result, and as individuals they have found effective ways to overcome these barriers. Finding effective ways to provide support for online teaching faculty is imperative to a successful online program.

IDDL provides a comprehensive approach for empowering faculty to teach classes at a distance. To provide online instructors at Virginia Tech the tools and strategies needed to facilitate an effective online course, IDDL has developed a comprehensive professional development program. Faculty engaged in distance learning at Virginia Tech can participate in workshops ranging from online tools and course design to effective communication in the online course and advanced online course pedagogy. Additionally, IDDL sponsors and facilitates an active eLearning community of practice designed to advance good distance learning practice at Virginia Tech.

In addition to a robust faculty professional development program, IDDL offers one-on-one consultations with course designers and eLearning support specialists. Instructional designers at IDDL work with faculty on one-on-one basis to design and develop online courses. A systematic instructional design approach combined with project management practices has been utilized in the collaborative course design process. With guidance from the instructional designers, faculty move through the different stages of course design step-by-step. This method gradually introduces faculty to various aspects of online teaching and makes the course design tasks manageable and less daunting.

To ensure course quality, Quality Matters rubrics are applied at two levels. First, the rubrics are provided to faculty in each phase of course design so that faculty can use them to guide their course design. Second, after the course is

fully developed, peer reviewers identified by faculty will use the Quality Matters rubrics to evaluate the course quality.

Face-to-face interviews with faculty conducted at the end of the course design process have indicated that faculty are more confident in designing and teaching online courses after this collaboration with the instructional designers. They stated that they have learned a great deal about course design and teaching, not only for online delivery, but also for face-to-face instruction.

In this session, participants will examine the process of aligning institution strategic goals with stakeholder needs. In addition, representatives from IDDL will offer examples of IDDL's strategic efforts at improving distance learning at Virginia Tech. Participants will be given specific examples of professional development efforts and view actual courses designed with faculty at Virginia Tech.

References

Association of Public and Land-grant Universities-Sloan National Commission on Online Learning (2009). OnlineLearning as a Strategic Asset. Retrieved November 4, 2009 http://www.sloanc.org/APLU_Reports
Chickering, Arthur and Erhman, Stephen C. (1996), "Implementing the Seven Principles: Technology as Lever," AAHE Bulletin, October 1996, pp. 3-6.
Gunawardena, C. N., & Zittle, F. J. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *American Journal of Distance Education*, 11(3), 8-26.
Ingram, A. L. (2005). *Engagement in Online Learning Communities*. In *Elements of Quality Online Education Engaging Communities, Volume 6 in the Sloan-C Series* (pp. 55-71). Sloan-C Foundation.
Moore, J. C. (2008). *A Synthesis of Sloan-C Effective Practices*. The Sloan Consortium.
Swan, K. (2005). A constructivist model for thinking about learning online. *Elements of Quality Online Education: Engaging Communities*, Vol 6, 13-31.

Advising as Teaching

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Abstract: Academic advising plays an integral role in facilitating student success. It contributes to student persistence, achievement, personal development, and engagement while also providing one of the first opportunities for students to be actively engaged with an institutional representative who is concerned about their academic success. Advisors are also instructors, "teaching" students to navigate the institutional culture so that they may have a greater awareness and utilization of, the vast programs and services offered by the university. This session will review the parallels between effective teaching practice and advising practice in order to highlight the opportunity faculty have to challenge students to engage in meaningful educational planning.

Literature Review

Crookston (1972) introduced the concept of "Advising as Teaching" as a means of articulating how advising can be viewed as a teaching function. Specifically, it is a paradigm based on a relationship between the faculty member and student in which learning by both stakeholders occurs and is the ultimate outcome of the process. While embracing this paradigm, others have added more substance in an effort to highlight the practical linkages between excellence in teaching and excellence in advising (Hemwall & Trachte, 2003; Kramer, 2003; Lowenstein, 2000; Reynolds, 2003; and Wade and Yoder, 1995). Given the focus on higher education teaching excellence and the scholarship of teaching and learning, King (2006) has explored the impact of advising on the teaching and learning mission.

Goals and Objectives for the Practice Session

The goal of this session is to demonstrate effective advising practice and disseminate the latest institutional specific research aimed at improving the quality of advising as well as higher education overall. Crookston (1994) advances the concept of "advising as teaching" as he notes "advising is concerned not only with a specific personal or vocational decision but also with facilitating the student's rational processes, environmental and interpersonal interactions, behavioral awareness, and problem-solving, decision-making, and evaluation skills. Not only are these *advising* functions but they are essentially *teaching* functions as well" (p.5)

Academic advising plays an integral role in facilitating student success. It provides one of the first opportunities for students to be actively engaged with an institutional representative who is concerned about their academic success while also contributing to persistence, achievement, personal development, and engagement. Effective academic advisors are available, responsive to student needs, and help students develop into autonomous thinkers. Advisors are also instructors, "teaching" student to navigate the institutional culture so that they may have a greater awareness and utilization of, the vast programs and services offered by the university.

Quality academic advising introduces students to higher education and connects them to the culture of Virginia Tech. It is more than interpreting a checksheet or assisting with course selection as it helps students to persevere through and manage the higher education environment. Ultimately, quality advising will assist students in making informed decision about reaching their goals.
Virginia Tech recognizes the importance of quality academic advising and is making intentional efforts to develop and maintain a comprehensive system of advising. This session will review (1) the history of advising at Virginia Tech, (2) a summary of assessment data collected regarding advising, and (3) the current advising priorities of the institution. Specific strategies to address each of the current advising priorities will be shared. Though much of the discussion will be institutional specific in terms of data, many strategies are generalizable and can be implemented at other types of higher education institutions or learning environments.

As a result of participation, attendees will be able to:
- Identify various academic advising models,
- Compare and contrast exemplary teaching and advising practices,
- Explain the major principles of the "Advising as Teaching" paradigm, and

- Discuss specific strategies that can be used to enhance the advising relationship, reinforce a learning-centered advising approach, and positively impact students' persistence, achievement, personal development, and engagement in higher education.

Description of the Practice to be Modeled

Participants who attend this session will gain a better appreciation for the positive impact of quality academic advising on student learning and success in higher education. The target audience includes both faculty advisors and professional advisors at all levels. They will discuss specific strategies for improving advisor effectiveness. Participants will also be encouraged to actively participate in this session by sharing their successes and challenges in motivating and engaging their own students in the advising process.

References

Crookston, B. (1972). A developmental view of academic advising as teaching. *Journal of College Student Personnel, 13*, 12–17.

Hemwall, M. K., & Trachte, K. C. (2003). Academic advising and a learning paradigm. In M. K. Hemwall & K. C. Trachte (Eds.), *Advising and learning: Academic advising from the perspective of small colleges and universities* (NACADA Monograph No. 8, pp. 13–20). Manhattan, KS: National Academic Advising Association.

Kramer, G. (2003). Advising as teaching. In G. Kramer (Ed.), *Faculty advising examined*. (pp. 1–22). Bolton, MA: Anker.

Lowenstein, M. (2000, April 14). Academic advising and the "logic" of the curriculum. *TheMentor, 2*(2), Retrieved October 25, 2011, from http://www.psu.edu/dus/mentor/

Reynolds, M. (2003). Faculty advising at small colleges: Realities and responses. In M. K. Hemwall & K. C. Trachte (Eds.), *Advising and learning: Academic advising from the perspective of small colleges and universities* (NACADA Monograph No. 8, pp. 21–32). Manhattan, KS: National Academic Advising Association.

Wade, B. K., & Yoder, E. P. (1995). The professional status of teachers and academic advisers: It matters. In A. G. Reinarz & E. R. White (Eds.), *Teaching through academic advising: A faculty perspective* (pp. 97– 102). San Francisco: Jossey-Bass.

Analyzing Reflective Inquiry Which Better Enhances the Learning Process of Collaborative Negotiation

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Abstract: Reflection can constitute an important element in the challenge of integrating collaborative negotiation concepts to actions within the negotiation learning process. However, defining which type of reflective inquiry better enhances learning and leads management students to transform their ways of negotiating collaboratively, presents additional challenges. This practice intends to explore the extent to which a set of self reflection guides designed by the author, allow negotiation students to consolidate personal traits, establish communication with themselves, integrate course content to their practice as negotiators, and assist them in identifying their needs and values as well as those of their negotiation counterpart. The session intends to give participants some inputs to analyze what will be important to take into account in the designing of reflective inquiry guides that enhances a learning process.

Literature Review

Some authors have considered the importance that reflection has in the learning process arguing that it allows observing situations from distance, questioning individual experiences, assumptions, actions and getting awareness of feelings (Scott, 2010; Pavlovich et al., 2009; Kegan and Lahey, 2010 and Hedberg, 2009). Some of these authors, like Scott (2010), Hedberg (2009), Baker, Jensen, and Kolb[1] and Kegan and Lahey (2010), assert that reflection may allow people to identify areas of improvement or even to take to transformations. However Kegan and Lahey (2010), clarified that in order to do that, reflection will need to be done with a special method, which could take the person to alter his "immunity to change".

I believe reflection is a subject relevant to the activity of internalizing knowledge and has a potential in the process of consolidating collaborative negotiation abilities. However, defining what is the kind of reflective inquiry which helps to enhance learning and leads the person to transform his or her way of seeing or doing things and in the current case, the way of negotiating collaboratively, present additional challenges. That is why I agree with Hall, Ramsay and Raven[2] in the idea that a well-designed educational process can assist students to engage in a deeper level of awareness than conventional methods. The proposal of what a well design process that enhances reflection includes a clear structure and guidelines with a student centered approach (Pavlovich et al., 2009).

However, these structured guidelines should also take into account an open space in which students can bring what they consider significant.

Objectives

- Get awareness of what entails using reflective inquiry guides as part of a learning environment.
- Get awareness of some elements of reflective inquiry, which better enhances a learning process.
- Be able to take into account criteria of analysis for the kind of reflective inquiry guides that are connected to the course content.
- Be able to include into reflective inquiry guides, parameters connected with the course learning goals.

Description of Practice to be Exemplified

I will present an introduction of my research practice using reflective inquiry guides. I will also present the content of the negotiation course in which I use the guides and the four parameters that I expect reflective inquiry will help students to enhance, such as:
- Consolidating personal traits useful for collaborating,
- Getting self-awareness of assumptions and paradigms,
- Integrating content of the course with actions taken in the case simulations of negotiations, and

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[1] Cited in Hedberg, 2010
[2] Cited in Pavlovich et al., 2009

- Connecting with individual feelings and needs and/or with those of others.

After that, I will give participants some handouts with a summary of the course content, the four parameters listed above, and two examples of the reflective inquiry guides I have designed to support student's process of learning negotiation abilities. With those materials, participates will work in groups for a while analyzing to which extent those examples enhance the learning process of collaborative negotiation abilities.

I will guide a discussion in plenary with participants' conclusions of their work in groups and finally I will ask them to think and write a sentence that answer the question: what will be important to take into account in the designing of reflective inquiry guides for their courses. Finally those who desire will share their ideas and/or questions.

Discussion

I have been using different self-reflection forms, which I understood as reflective inquiry guides, due to the way of searching for meaning through questions suggested in them. The objective of those instruments is for students to become aware of what they do during the negotiations, so that they may become more collaborative, and so that they can continue to develop such skills in future negotiations.

My work as a professor in the field of negotiation at Management Education, have let me found that some negotiation students, make important discoveries about the ways that they think, feel and act through the reflections they do. At the same time, other students keep themselves at a distance from their own emotional and psychic capacities and struggle to identify positive aspects in their performance as negotiators, which prevents them from making their abilities explicit, valuing them and thus, making use of them.

A thoughtful way of using inquiry in the reflection guides, which connect questions with the course content, the learning goals and other possible expectations professors wish students will achieve, will be one of the ways in which students could take a great advantage of reflection for their learning process. Besides it, a way that maintain a balance between structured guidelines, and an open space in which students can bring what they consider significant from the experience will also support the learning process of collaborative negotiation.

References

Hedberg, P. (2009) Learning through reflective classroom practice: Applications to educate the reflective manager. *Journal of Management Education*. 33 (1): 10-36

Kegan, R., & Lahey, L. (2010) From subject to object: A constructive developmental approach to reflective practice. *On Handbook of Reflection and Reflective Inquiry*. Nona Lyons Editor. U.S.A: Springer. 433:449-604.

Moon, J. (1999) Reflection in learning and professional development: Theory and practice London and New York: Routledge Falmer J Taylor Francis Group. 103:135-227

Pavlovich, K., Collins, E., & Jones, G. (2009) Developing students' skills in reflective practice: design and assessment. *Journal of Management Education*. 33 (1): 37-58

Scott, S. (2010) Enhancing reflection skills through learning portfolios: An empirical test. *Journal of Management Education*. 34 (3): 430-457

Applying the Learner-Centered Teaching Model in Introductory Courses

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Abstract: This paper discusses the application of the Learner-Centered Teaching model in introductory courses. It is based upon the experiences of the instructor and students in a 1000 level political science course that included students from a broad range of majors. The presentation will include discussion of the effectiveness of team-based research, an emphasis on the value of peer evaluation in promoting student engagement and learner responsibility, and a discussion of strategies for democratic sharing of power between the students and instructor. The success of this approach with the wide range of majors in the course indicates that learner-centered teaching can be effective in many disciplines. Additionally, the students demonstrated that the model was equally successful with freshmen and with upperclassmen; academic level had little influence on engagement levels. Thus, the discussion will be geared toward introductory level teaching.

Literature Review: What is Learner-Centered Teaching?

The learner-centered teaching model, as proposed by Maryellen Weimer (2002), is a teaching model that is an alternative to the lecture/test model of teaching. This presentation will discuss the incorporation of strategies described by Anne Brockbank and Ian McGill (2007) in *Facilitating Reflective Learning in Higher Education* and Diana E. Hess (2009) in *Controversy in the Classroom: The Democratic Power of Discussion* into the learner-centered teaching model (Weimer, 2002). According to Weimer (2002, 8-17) learner-centered teaching requires five core changes to the practice of teaching. These are a restructuring of the balance of power in the classroom, altering the role of the teacher, rethinking the function of content, resituating the responsibility for learning, and revisiting the role of evaluation and assessment. This session will discuss strategies that have been employed in an introductory level political science class that were intended to facilitate these changes.

The restructuring of the balance of power in the classroom was inspired by a peacebuilding strategy called the negotiated model (Lederach, 2005). In this model power is shared equally amongst actors in the peacebuilding process through democratic negotiation at all levels of society. The author recognized the concept as an opportunity to attempt to overcome the power-dynamics in the classroom that could hinder the learning process (Weimer, 2002). Diana Hess (2009) argues that a democratic education will serve a student better than a civic education. Democratic education involves discussion and helping the students learn through a democratic process of building understanding with peers.

The teacher's role in this process is to serve as a guide (Weimer, 2002, 75-6): to help when students are stuck, to guide the discussion if it gets off-course, and to provide the spark for discussions to begin. This democratic education enables the student's ability to contribute their own experience and knowledge to the learning process (Hess, 2009). This act changes the power-dynamic in the classroom in fundamental ways. The students are learning from each other as much as they are learning from course content and the teacher.

Description of Practice: Strategies for Implementing Learner-Centered Teaching

This paper discusses strategies for employing the learner-centered model in an introductory level course. It uses a 1000-level political science course as an example. The course is taken by students in a wide range of majors at Virginia tech; the class consisted of students at every stage of academic progress from freshmen to seniors and represented a diversity of majors including engineering, philosophy, history, and political science, among others. Cultural diversity was represented by international students and students who had completed significant study aboard programs. Observations of class participation, high levels of student engagement, and positive student comments demonstrate that the approach is applicable to courses across disciplines and academic levels.

The strategies employed represent a range of pedagogical practices geared at developing critical thinking skills and higher order learning. For instance, a team research project was begun in the first week of the class. We divided into teams based on student's self-selection of countries of interest. The groups were determined by region of the world according to UN designations for which region a country represents. The research teams also performed peer review for the other members, participated in all group exercises together and also served as study teams. The members of

the team were engaged in a group project in which they synthesized individual research into a group presentation. Additionally, they were allowed to work with each other as academic support in case one member needed to miss class, and on preparing for discussions and the final exam.

The students have demonstrated a high level of engagement, in part, I suspect that this is promoted by the peer evaluation that they are responsible for. For instance, the students will evaluate the other team members to determine attendance and participation grades.

Goals and Objectives for the Session

The learning outcomes of the session will include:
- Participants will develop the ability to adapt the learner centered strategies that worked in the introductory classroom to the participant's classroom and discipline,
- The participants will have a broad understanding of the learner centered model for teaching and how the democratic negotiated model and strategies for reflective learning support the model,
- The participants will have developed an understanding of strategies that help students become critically engaged with content, and each other, and
- Finally, participants will be able to overcome resistance to increased learner responsibilities without relying on coercive policies and practices.

What will you do in this session to help them reach their goals?

The session will include an activity that will engage the participants in the identification of learning and teaching strategies that have helped them and their peers to be engaged, responsible learners. Additionally, we will engage in indentifying practices that they have experienced that hindered the learning process. Finally we will engage in a group discussion of how the participants may be able to adapt these strategies to their own classrooms. One of the premises of reflective learning, democratic learning and learner centered learning is that groups of people tackling a problem can find new pathways that a single person may not have seen.

References

Brockbank, A., & McGill, I. (2007). *Facilitating Reflective Learning in Higher Education* (2nd ed.): McGraw Hill.
Hess, D. E. (2009). *Controversy in the Classrrom: The Democratic Power of Discussion*. New York: Routledge.
Lederach, J. P. (2005). *The Moral Imagination: the Art and Soul of Building Peace*. New York: Oxford University Press.
Weimer, M. (2002). *Learner-Centered Teaching: Five Key Changes to Practice*. San Francisco: Jossey-Bass.

Autobiographical Roadmaps:
Preservice Teachers' Divergent Paths From Learning to Teaching to Learning

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Abstract: This practice session will describe and demonstrate the initial assignment in a graduate adolescent literacy course in which students reflected upon their literacy histories in terms of cultural, social, familial, and educational influence. Students were provided with a series of questions to frame their reflective thinking about the types of lived experiences that most significantly contributed to their thoughts and beliefs about literacy. From those reflections, students created virtual or physical roadmaps using artifacts such as photographs, mementos, illustrations, and words connected by navigational symbols. As co-presenters, graduate students will model the process and share their roadmaps. Session participants will then explore their own experiences as they create and reflect upon autobiographical roadmaps specifically related to their content areas. We will engage in discussion of how autobiographical coursework can unearth identities and beliefs which influence pedagogical choices and ultimately support student learning.

Literature Review

Learning to be literate involves more than just self and a competent teacher. It involves influences of family, culture, education, social structure (Rose-Cohen, 2009). Learning to be a teacher involves those same aspects, as well as deeper introspection into individual paths that lead to the desire to teach. Wolpow (2004) claims that "the most important pages we must learn to read and write are the pages of our own lives" (p. 8). When preservice teachers engage in meaningful discernment of their lived experiences, they are more apt to bring cultural relevancy, equity and humanistic values to their pedagogical choices (Alvine, 2001; Roe & Vukelich, 1998; Unrath & Kerridge, 2009). Autobiographical reflective exercises provide preservice teachers with opportunities to bring their outside lives into the classroom in order to realize that who they are impacts how they teach (Cozart, Generett & Price, 2007). Additionally, autobiographies help preservice teachers understand that safe learning spaces can be created through shared cultural understandings (Labbo, 2007). In turn, these spaces provide students with secure environments in which taking learning risks is valued by both teacher and student.

Goals and Objectives for the Practice Session

The overall goal for this session is to equip participants with the knowledge and processes necessary to create autobiographical coursework generalizable to a variety of classroom settings and adaptable to diverse groups of learners. Objectives for this session include the following: (a) identify multiple purposes for engaging students in autobiographical coursework; (b) identify and discuss conceptual frameworks to guide methods for creating autobiographical coursework; (c) identify potential questions to facilitate reflection; (d) model examples of virtual and physical literacy history roadmaps; (e) create and share autobiographical roadmaps; (f) discuss implications for teaching and learning with autobiographical roadmaps.

Description of the Practice to be Modeled

This practice session will allow participants to understand the significance of providing preservice teachers the opportunity to reflect upon their personal lived experiences as necessarily impacting pedagogical beliefs and methods. I, the course instructor and primary presenter, will open the session with a demonstration of a student's final literacy history roadmap as backdrop to where the session will lead the participants. I will share and describe the assignment's purpose, requirements and assessment so that participants are provided with a full perspective of the position of students as they initially worked through the assignment. My co-presenters, two graduate students who recently completed the assignment, will each share her roadmap: one virtual roadmap and one physical roadmap. As a team, we will provide participants with a framework and model for working through their own lived experiences as related to the content they teach. With facilitation by presenters, participants will create and share partial roadmaps. Finally, the presenters will engage participants in a discussion of how an autobiographical assignment such as this can lead to new understandings of how pedagogical beliefs and actions are often shaped by unearthed historical experiences.

Discussion

Literacy is defined as reading, writing, listening and speaking: it is the basis for all learning in every educational environment regardless of content. Preservice teachers have an ever-increasing responsibility to learn specific pedagogical methods for teaching literacy in history, math, science, English, and non-core subjects such as technology, art and physical education. This responsibility is complicated by the fact that teachers' developmental histories of learning to become literate themselves are often left unexplored, yet undoubtedly influence pedagogical decisions. Allowing preservice teachers the learning space to reflect upon their unique development as readers, writers, listeners and speakers reveals diversified paths that illustrate how identities are shaped and re-shaped by life experiences. Furthermore, sharing these paths with others informs, challenges and often changes underlying assumptions that because we are literate we necessarily hold the same beliefs about literacy. The presentation session outlined above will illustrate the process and value inherent to autobiographical coursework that can be generalized to various classroom settings and across diverse disciplines.

References

Alvine, L. (2001). Shaping the teaching self through autobiographical narrative. *The High School Journal*, *84*(3), 5-12.

Cozart, S. C., Generett, G. G., & Price, P. G. (2007). Biography as curriculum: Autobiographical representations in preservice teacher education. *Vitae Scholasticae*, 24, 77-89.

Labbo, L. (2007). Modest revelations on preservice teachers' explorations into cultural identity, prejudice and empathy. *Journal of Reading Education*, *33*(1), 40-44.

Roe, M. E., & Vukelich, C. (1998). Literacy histories: Categories of influence. *Reading Research and Instruction*, *37*(4), 281-295.

Rose-Cohen, L. (2009). Knowing ourselves so we may know others: Reflections for a white facilitator of multicultural learning. *Adult Learning*, *15*(1/2), 36-39.

Unrath, K. & Kerridge, D. (2009). Becoming an art teacher: storied reflections of two preservice students. *Studies in Art Education*, *50*(3), 272-286.

Wolpow, R. (2004). The pages from our lives. *Journal of Adolescent and Adult Literacy*, *48*(1), 6-9.

Beyond the "Sink or Swim" Model for Beginning University Teachers: Group Mentoring of Early Career Faculty

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Abstract: University faculty are often woefully unprepared to begin teaching. While they often gain some limited experience serving as a GTA for one or more professors, more often than not, they acquire only minimal preparation to take on the many complex challenges of teaching independently. To begin addressing this concern, more than six years ago we created a mentoring group consisting of early career faculty and more seasoned veterans who meet regularly to read and discuss pedagogical literature and to share what is going on in their classrooms. Modeled on similar experiments at other institutions, our learning community not only fosters the acquisition of useful teaching skills but also self-confidence and sense of connection that is vital to the sense of faculty satisfaction.

Literature Review

Despite recurrent calls to better prepare faculty for the rigors of teaching undergraduates, many university instructors continue to enter the profession with little formal training in how to be effective in the classroom. While initiatives like the Preparing the Future Faculty Program have begun addressing this long-standing problem, the prevailing assumption in many disciplines continues to remain that the expertise acquired through years of rigorous disciplinary training is sufficient to be a successful teacher (Gaff, Pruitt-Logan, Sims & Denecke, 2003). Indeed, many students leave graduate school not only with very limited teaching experience as a GTA but also the message that research contributions are much more important for future career advancement than instructing undergraduates. The relative lack of proper training for teaching is exacerbated by recent changes in the academic landscape, including growing calls for assessment and accountability, increased pressures for obtaining external funding, and demands for higher levels of research productivity, that today's faculty typically face in addition to their teaching responsibilities (Austin, 2002).

In an effort to address this problem and begin providing early career university teachers with the knowledge, skills, and support they need to achieve success, a number of educators have begun experimenting with various forms of group mentoring (Gaia, Corts, Tatum, and Allen, 2003; Cox, 2004; Darwin & Palmer, 2009; Boyle & Boice, 1998). Whether aimed at GTAs or newly hired faculty, these innovative mentoring programs attempt to foster a sense of community among participants, provide a venue for sharing successes and frustrations in the classroom, and explore techniques and approaches that promote effective teaching and learning.

Goals and Objectives

This practice session will highlight the experiences of a mentoring group for teaching that we organized six and one-half years ago, a learning community consisting of early-career faculty and a small number of more experienced teachers (not unlike the experiment discussed in Cox, 2004). With the help of ongoing financial support from the Center for Excellence in Undergraduate Teaching and (more recently) the Center for Instructional Development and Educational Research, our group has met bi-weekly to explore together how effective teaching and learning takes place, to provide a safe place to discuss what's going on in our classrooms, and to offer emotional and intellectual support for each other.

Our learning community not only promotes the acquisition of useful teaching skills but also a sense of connection. Numerous studies have shown that one of the best predictors of whether a newly hired faculty member thrives at a new university (and wants to remain there) is the sense of community fostered within that institution (Rice, Sorcinelli, and Austin, 2000; Boice, 1993). Our group forges a sense of community around the issue of quality teaching, active learning, and student engagement. It provides a venue for participants to meet together regularly with like-minded colleagues who are also committed to the teaching and learning enterprise, but to do so in an

informal, supportive environment in which no one feels that she or he is being judged or evaluated. We believe our experiment has not only been a successful in promoting the professional growth of and sense of self-satisfaction among our faculty but also that it is worthy of emulation.

Participants in this practice session will gain a sense of the factors that contribute to a thriving teaching mentoring group, the many useful functions such a group can serve, and some of the challenges and pitfalls associated with launching and sustaining such a group. Our hope is that those who attend our session will not only be convinced of the value of teaching mentoring groups but also will be inspired to undertake similar experiments within their own institutional context.

Description of Practice to Be Modeled

We will model our session on the bi-weekly discussions that we have as a group. This format will not only provide those who attend with a sense of how members of our mentoring group interact with one another, but also allow ample opportunity for audience participation, feedback, and questions.

References

Austin, A. E. (2002). Preparing the next generation of faculty: Graduate school as socialization to the academic career. *Journal of Higher Education*, *73* (1), 94-122.

Boice, R. (1993). *Supporting and Fostering Professional Development*. San Francisco: Jossey-Bass.

Boyle, P., & Boice, B. (1998). Systematic mentoring for new faculty teachers and graduate teaching assistants. *Innovative Higher Education*, *22* (3), 157-179.

Cox, M. D. (2004, Spring). Introduction to faculty learning communities. *New Directions for Teaching and Learning* 97, 5-23.

Darwin, A. and Palmer, E. (2009). Mentoring circles in higher education. *Higher Education Research and Development, 28* (9), 125-136.

Gaia, A. C., Corts, D. P., Tatum, H. E., & Allen, J. (2003). The GTA mentoring program: An interdisciplinary approach to developing future faculty as teacher-scholars. *College Teaching*, *51* (2), 61-65.

Gaff, J. G. and Lambert, L. M. (1996). Socializing future faculty to the values of undergraduate education. *Change 28* (4), 38-45.

Gaff, J. G., Pruitt-Logan, A. S., Sims, L. B., & Denecke, D. D. (2003). *Preparing Future Faculty in the Humanities and Social Sciences: A Guide for Change*. Washington, DC: Association of American Colleges and Universities.

Rice, R. E., Sorcinelli, M. D., & Austin, A. E. (2000). Heeding New Voices: Academic Careers for a New Generation. New Pathways: Faculty Careers and Employment for the 21st Century Series, Working Paper Inquiry no. 7. Washington, D.C.: American Association for Higher Education.

Building Brains: Students as Co-Constructors of Knowledge in the Classroom

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Abstract: Many 21st century students struggle to find personal relevance and application of general education course material beyond graduation requirements. Traditional lecture teaching formats tend to be rigid, instructor-focused and promote passive, extrinsically motivated learning experiences. Such formats ultimately stifle opportunities for student success and satisfaction. By contrast, the impact of using innovative teaching and learning strategies on improving student engagement in the classroom has been well-documented in research literature. Specifically, innovative instruction based on constructivist pedagogy (Freire, 1970) offers students dynamic, collaborative, exploratory and transformative learning experiences. Such methods engender genuine engagement and investment, enrich critical thinking and insight, and improve student learning outcomes and satisfaction (Shor, 1992). This interactive practice session will model constructivist pedagogy, an instructional approach that complements all disciplines. Participants will be exposed to traditional and collaborative learning models as they explore aspects of the brain. Afterwards, participants will be invited to deconstruct the elements of each model. Finally, participants will be challenged to consider the types of pedagogical and/or classroom culture shifts necessary to promote transformative teaching and learning experiences in their respective fields of study.

Literature Review

Research on the influence of passive and active instructional methods on information processing and memory is represented in the literature. O'Keefe and Nadel (1978) suggest that the human brain naturally retains massive amounts of information through a process they termed *locale* (or spatial) *memory*. This form of memory stores information in context and helps subjects remember the spatial relationships of objects and thematic relationships of ideas (O'Keefe and Nadel, 1978; Nadel, 1992). Students whose spatial memory is activated through critical thinking, inquiry, problem-based learning, creative expression, and collaborative learning tend to experience education as meaningful and transfer knowledge with relative ease (Caine and Caine, 1991). Experiences like these are rare features of traditional education, which relies more heavily on rote memory and recall—a process that activates what O'Keefe and Nadel (1978) termed the *taxon memory* system. This system, they contend: (1) stores information slowly and incrementally through a process of practice and rehearsal, (2) relies on extrinsic motivation, (3) stores information in a form that is rigid and not easily changed, (4) stores information in relative isolation, and (5) stores information without regard to meaning (Caine and Caine, 1991; Nadel, 1992).

Information processing and memory research has significant implications for learning. Most importantly, formal learning situations often fail to engage memory systems effectively. A heavy reliance on taxon memory, for instance, never yields higher-order thinking. Curriculum that activates the taxon memory system is often pre-determined, lecture and textbook driven, teacher-centered, standardized, disconnected from meaningful experiences, discipline specific, and reliant on lower-order thinking (Caine and Caine, 1991). As evident in poor student outcomes, when opportunities for personal control and participation in the creation of knowledge are limited, students quickly become disconnected from and, quite frankly, disinterested in learning beyond assessment (Shor, 1992). By contrast, instruction that activates declarative memory, the equivalent of O'Keefe and Nadel's (1978) spatial memory, provides opportunities to form long-term memories that have been developed as a result of learning the facts of the world and remembering experiences in context, respectively (Squire, 2004; Tulving, 1983; Shimamura & Squire, 1987). Such opportunities will invariably lead to improved student outcomes and satisfaction.

Goals

The goals of this practice session are to (1) model the use of an innovative instruction method based on constructivist pedagogy and (2) have participants exchange ideas about incorporating such methods within their own courses. Students will be challenged to both independently and collaboratively use various resources to build a knowledge base about the brain upon a foundation provided by the instructor at the outset of a learning module.

Objectives

The objectives of this practice session are to: (1) simulate a learning environment in which passive, traditional lecture formats and collaborative, discovery-centered learning models are juxtaposed; (2) model the constructivist approach to learning about the brain; (3) reflect on the strengths and shortcomings of each instructional method; (4) stimulate thinking among educators across multiple disciplines regarding the benefits and challenges of incorporating such innovative teaching and learning strategies in their own fields of study and (5) challenge educators to reflect critically upon the potential shifts in teaching pedagogy and classroom culture that would be necessary to provide opportunities for transformative teaching and learning experiences within their respective courses and fields of study.

Description of the Practice to be Modeled

In this interactive session, participants will be immersed in a simulated classroom experience and challenged to take the perspective of undergraduate students in a general education course. Participants will be exposed to traditional and innovative teaching methods, respectively, as the class explores a brief module on the brain. Participants will first be exposed to a 10-minute traditional lecture format, during which basic concepts about the brain will be introduced. Participants will then be exposed to the constructivist learning model, during which time they will work collaboratively to build upon the information base learned during the traditional lecture. Participants will be challenged to use Smartphone applications and online resources to develop deeper understanding of specific aspects of the brain. Additionally, students will be encouraged to forge personally relevant connections between their independent brain research and their own skills, habits and fields of study. Participants will work collaboratively to become "experts" on particular areas of the brain, to which they will randomly be assigned to research, and required to share their findings with the class. Finally, participants' understanding of the brain will be formally assessed by having each student complete a hands-on task to construct their own model of the brain. At the conclusion of the collaborative group work and assessment, participants will be asked to compare and contrast their experiences with each learning format, with focus on the impact each had on their level of engagement, intellectual curiosity and retention. The session will conclude with reflections on the types of cognitive shifts among instructors and students may be necessary to effectively utilize the constructivist learning model in participants' respective fields of study.

Discussion

As an instructor of general education courses in psychology, I have been challenged to help undergraduates find purpose and utility in the course material beyond the requisites for graduation. Recognition that numerous faculty across diverse disciplines share my struggle with effectively engaging and inspiring intellectual curiosity among 21st century students has contributed significantly to recent paradigm shifts in my own teaching pedagogy. I realize that in order to achieve my goals as an instructor, I must reconsider my perceptions of this "new generation" of students, my role as an educator, what constitutes learning, and the culture I help create in the classroom. It is my aim to provide a stimulating platform for other educators to consider the same.

References

Caine, R.N., & Caine, G. (1991). *Making connections: Teaching and the human brain*. Alexandria, VA: Association for Supervision and Curriculum Development.

Freire, P. (1970). *Pedagogy of the oppressed*. New York: Continuum.

Nadel, L. (1992). Multiple memory systems: What and why. *Journal of Cognitive Neuroscience*, 4(3), 179-188.

O'Keefe, J., & Nadel, L. (1978). *The hippocampus as a cognitive map*. Oxford: Clarendon Press.

Shimamura, A.P., & Squire, L.R. (1987). A neuropsychological study of fact memory and source amnesia. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 13(3), 464-473.

Shor, I. (1992). *Empowering education: Critical teaching for social change*. Chicago: University of Chicago Press.

Squire, L.R. (2004). Memory systems of the brain: A brief history and current perspectives. *Neurobiology of Learning and Memory*, 82(3), 171-177.

Tulving, E. (1983). *Elements of episodic memory*. Cambridge: Oxford University Press.

Case Studies and The 'Ah? Ha!' Teachable Moment

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Abstract: Case studies have proven to be effective pedagogical tools for undergraduate and graduate education audiences in the curriculum areas that require problem-solving and decision-making skills, statistical analysis, and management sciences. Case studies can provide the basis for moving away from the traditional technique-driven, compartmentalized, lecture methods course to a course that is decision- and action-oriented, integrated in both form and pedagogy within a curriculum, and managerially exciting. Participants in this practice session will process through the steps to case-problem analysis, using the case, "*Freemark Abbey Winery*." This two-page case uses subjective assessment from data and analytical distributions to address and answer a vintner and winery owner's dilemma – should we harvest our grapes now, before the forecast rainstorm, or should we wait and see if it even rains at all before harvesting? Participants will also share classroom communication tools and techniques for defining the decision orientation, internalizing the relevant teachable concepts, and articulating the reasoning process to reach an appropriate response or answer.

Goals and Objectives for the Practice Session

Upon completion of the session, participants will be able to:
- Recognize the role(s) a case may play in developing interaction among students and instructor,
- Define and articulate the characteristics of a strong case,
- Apply the seven-step approach in analyzing a case plus writing a case report, and
- Communicate the teachable moments and learning benefits expected from completing a case analysis.

Literature Review and Description of the Case Study

Case studies have proven to be effective pedagogical tools for undergraduate and graduate education audiences in the curriculum areas that require problem-solving and decision-making skills, statistical analysis, and management sciences. Case studies can provide the basis for moving away from the traditional technique-driven, compartmentalized, lecture methods course to a course that is decision- and action-oriented, integrated in both form and pedagogy within a curriculum, and managerially exciting. The most widely applicable methodologies of decision and risk analysis, probability and statistics, competitive analysis, and management science are integrated with personal judgment, intuition, and common sense in a way that is meaningful to student and executive learners alike.

The case method as a teaching strategy has been publicized and utilized for over half a century, and was implemented to transfer much of the responsibility for learning from the teacher on to the student, whose role, as a result, shifts away from passive absorption toward active construction (Boehrer, 1990). Through careful examination and discussion, students learn to identify actual problems and to articulate them so as to become aware of those aspects of a situation that contribute to the problem; along the way students develop the power to analyze and to master a tangled circumstance by identifying and delineating important factors – the ability to utilize ideas, to test them against facts, and to throw them into fresh combinations (Merseth, 1991).

Just what is a case? Cases can play a variety of roles in a course. They may be focused on understanding core tools and concepts, on applying methodology appropriately, on defining the limits of good practice, or on inventing new methods and adapting existing ones for the problem at hand. Some cases may be highly structured, focusing on a single issue, with needed data laid out. Still others are appraisal cases, where the analysis is partly or wholly done. Finally and more commonly used, many cases are unstructured, with multiple issues and data challenges (missing or incomplete data, choices among data, or data preparation needed). Cases are often selected for use depending upon the goals and/or objectives of the investigator or instructor. These types of case study include: illustrative case studies (primarily descriptive), exploratory case studies (pilot or condensed studies performed before implementing a large scale investigation), cumulative case studies (serving to aggregate information), and critical instance case studies (examining a situation of unique interest – answering cause and effect questions).

What makes a strong case? A leading characteristic is a decision orientation with teachable moments. Relevancy is key – students recognize that the resolution of the situation matters to them. Issues of external validity, construct validity, and reliability needs to also be carefully considered. A strong case demonstrates a need to know something not currently known. It involves the practice of skills, including new and recently acquired skills. And it requires some internalization of concepts and the articulation of the reasoning process.

Advantages for using the case study approach to problem solving and decision making are two-fold. The case study approach is a comparatively flexible method of scientific research because it emphasizes exploration rather than prescription or prediction. The second advantage stems from a case study's emphasis on context that can give research results a more human face. Disadvantages of case studies are three-fold: inherent subjectivity whereby the approach relies on personal interpretation of data and inferences; high investment in time and thinking; and ethical considerations, namely the personal integrity, sensitivity, and possible prejudices and/or biases of the investigators need to be taken into consideration (Colorado State University, 2011).

Using an organized seven-step approach in analyzing a case will make the entire process easier and can increase the learning benefits. The seven steps are: 1) read the case thoroughly; 2) define the central issue; 3) define the firm's goals; 4) identify the constraints to the problem; 5) identify all the relevant alternatives; 6) select the best alternative; and 7) develop an implementation plan (Seperich, et al, 1996).

Participants in this practice session will process through the seven steps to problem analysis, using a case, "*Freemark Abbey Winery*" (Bodily, et al, 1996). This two-page case uses subjective assessment from data and analytical distributions to address and answer a vintner and winery owner's dilemma – should we harvest our grapes now, before the forecast rainstorm, or should we wait and see if it even rains at all before harvesting?

References

Bodily, S.E., Carraway, R.L., Frey, Jr., S.C., & Pfeifer, P.E. (1996). Case 21: Freemark abbey winery. *Quantitative Business Analysis Casebook*. Irwin (The McGraw-Hill Companies, Inc.).

Boehrer, J. (1990). Teaching with cases: Learning to question. *New Directions for Teaching and Learning* 42:41-57.

Colorado State University. (2011, August). Case Studies. Retrieved August 1, 2011, from http://writing.coloradostate.edu/guides/research/casestudy/.

Merseth, K.K. (1991). *The Case for Cases in Teacher Education*. RIE. (ERIC Monograph, 42 p.)

Seperich, G.J., Woolverton, M.J., Beierlein, J.G., & Hahn, D.E. (1996). Introduction to the case study method. *Cases in Agribusiness Management*. Gorsuch Scarisbrick, Publishers (Scottsdale, AZ).

Case Study Teaching Approaches for Improving Learning and Decision Making

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Abstract: The goal of the project is to increase student engagement in environment and food safety through the use of innovative case study approaches through a unique cross cultural learning network. Collaboration between Land-Grant Institutions (Florida A&M University, Virginia State University and Virginia Tech) and Historically Black Colleges and Universities (Elizabeth City State University and Bethune-Cookman University) with the internationally recognized program, "Global Seminar" (www.globalseminar.org) has resulted in ongoing USDA grants for case study teaching and the development of four cases on the environment, sustainability, and food safety. These cases are available to faculty teaching environmental health issues, food safety and microbiology, and have been field tested at each participating institution. Impact of the case-based teaching approach on student learning outcomes is evaluated at each respective university. Project outcomes include students better prepared to apply fundamental principles and problem solving in a cross cultural setting in environmental and food science education.

Literature Review

Traditional approaches for teaching environmental science, sustainability, food safety and microbiology have focused on instructor-centered lectures and memorization of the names and characteristics of scientific topics. Integration of fundamental concepts for application within a `real world' context has not typically been addressed. The 2009 publication, Transforming Agricultural Education for a Changing World, clearly noted the need for teachers to present material in a contextual manner that promotes experiential learning by students, and to develop the ability of students to learn in team/group formats (The National Academy of Sciences). Case-study teaching provides a means by which to accomplish this because it provides multiple approaches for effective teaching through `real life' examples. According to the National Center for Case Study Teaching in Science at the University at Buffalo, the use of case studies in science education can improve contemporary relevance of science education as well as support skill development in methods and critical thinking (http://sciencecases.lib.buffalo.edu/cs/about/). In addition, case study teaching allows students to gain confidence in "defining, confronting, analyzing, and solving problems through interactive discussions, and exercising and developing skills in public speaking and group problem solving," attributes which are highly valued in the workplace (Foran, 2001)

Methodology

With funding from the USDA Capacity Building Teaching Grant, three collaborating HBCUs, Virginia State University (VSU), Florida A & M University (FAMU), and Elizabeth City State University, developed case studies to enhance instruction in environment and food science. To undertake this responsibility, these three institutions (VSU, ECSU, and FAMU) received guidance from Dr. Dean Sutphin, Director of the Global Seminar and Associate Vice President of International and Appalachian Outreach, Edward Via College of Osteopathic Medicine. During the initial stages of the project activities, the three institutions (VSU, ECSU, and FAMU) engaged in Videoconferencing (VC), initially facilitated through bridge service provided by VCOM, later transitioning to institutional resources.

During the period, 2007-2011, faculty development workshops were hosted on the campuses of VSU, ECSU, FAMU, and VCOM. The workshops hosted in 2007-2011 resulted in the writing of case studies by the joint efforts of faculty members of VSU, ECSU, and FAMU. The four cases studies developed in the grant period are: "Antibiotic Use in Agriculture"; "When Will the Public be Informed? The Case of a Salmonella Outbreak in Florida"; "A Case Study on Climate Change in India"; and "Bottled Water: More Expensive than Gasoline".

Each case study was created through a comprehensive development cycle which includes initial planning and research, videoconference-based discussions with participating faculty members and mentor, case writing, development of instruction and materials, pilot testing in the classroom, student reflection and shared discourse, formative evaluation, and revision. Following the Global Seminar model, each case is taught simultaneously at each participating institution and students at the different schools meet to engage in problem solving and discussion with one another through videoconferencing.

Results

Results of the multi-institutional and cross-disciplinary collaboration include four completed case studies with accompanying instructional materials. Excerpts of two case studies serve as examples:

1. When Will the Public Be Informed? The Case of a Salmonella Outbreak in Florida
    The safety of the food supply is of paramount importance to each nation and consumer in the world. The advances made in food safety methodology have made the early detection of health outbreaks possible. However, identification of an outbreak is not always accompanied by conclusive knowledge about the causal agents, sources, and modes of transmission. Consequently, in deciding whether information should be released to the consumer, health sector officials must balance the public's need for health information against the potential for public panic. In the 1990s, health officials in the state of Florida faced this very situation as they dealt with an outbreak of salmonellosis among unrelated travelers who had visited a theme park in Orlando, Florida.

2. A Case Study on Climate Change in India
    This case study seeks to explain the processes that are behind the change in climate and highlight the very real, human impact of climate change. Further this case study addresses ways to combat climate change and ultimately protect social development prospects for future generations. In India, rapid economic development, coupled with poor management of the environment and natural resources, has left a deep impact on communities who rely on farming to make a living. In many places, people are also witnessing the impact of climate change in the form of floods, droughts, irregular rainfall and rising sea levels. Changes in temperatures and rainfall patterns are likely to affect the poorest populations in India as their livelihoods are largely connected to agriculture and dependent on natural resources.

Discussion

During the practice session, participants will each receive a case study as a basis to explore methods and best practice for teaching with cases in the sciences, including food safety, microbiology, environmental and health fields. Further, there will be discussion of the unique outcomes of collaboration across institutions including HBCUs and ideas for future development. Session leaders will also share methods based on their experience and related literature for assessing the impact of the case-based teaching approach on student learning outcomes at each respective university. The outcome of this effort is students who are better prepared to apply fundamental principles for assuring the delivery and outcomes of environmental and food science education.

References

Foran, J. (2001). The Case Method and the Interactive Classroom. *Thought and Action:* The NEA Higher Education Journal, 17(1) pp. 41-50. http://www.nea.org/assets/img/PubThoughtAndAction/TAA_01SUM_05.pdf

Transforming Agricultural Education for a Changing World. (2009). The National Academy of Sciences, Washington, DC.

National Center for Case Study Teaching in Science, University at Buffalo. (2010). Retrieved from http://sciencecases.lib.buffalo.edu/cs/about/

Celltasia: Exploring Cellular Processes Through the Arts

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"After a certain high level of technical skill is achieved, science and art tend to coalesce in esthetics, plasticity, and form. The greatest scientists are always artists as well." - Albert Einstein

Abstract: Biologists are the artists of the living world, attempting to understand and explain processes that are often unseen. They paint a picture utilizing disparate facts; woven together by imagination and intuition, all designed to make the unseen visible. Success in the biological sciences requires the ability to think abstractly in order to explain concretely. Students in my cell biology course struggled to go beyond the basic memorization of facts, and therefore could not visualize how cell processes and structures integrated to make a functional unit. In order to engage their creative side, and foster a deeper understanding of the material, I devised "Celltasia." Students are randomly assigned a cellular process or structure that they must represent in an artistic medium of their choosing. Participants will view student projects and methods of integrating analogy and the arts into a lecture format. Additionally they will have an opportunity to develop their own "Celltasia" project and discuss ways of incorporating this technique into their courses and disciplines.

Literature Review

Schema theory holds that individuals construct networks of information to organize their understanding of the world. The theory stresses the importance of schemas as a core element of cognitive processing (Tan et. al., 2003). In order to effectively integrate knowledge, existing schemas must be activated (Widmayer, 2011). Analogy and comparison have been suggested as useful tools for activating existing schema (Armbruster, 1996). Additionally, research suggests abstract concepts are understood after the learner has acquired a solid foundation of relevant information (Schallert,1982).

At the K-12 level the arts have been studied as important tools for increasing creative and critical thinking skills, and have been utilized to assist students in developing deeper understandings of scientific concepts (Jacobs, Goldberg, and Bennett 1999). The use of analogy for understanding scientific concepts has been explored (Hancock and Onsman. n.d), as has descriptive drawing (Edens and Potter, 2001) and Raccartoons (Cutraro and Ojalvo, 2010). In this practice session participants will explore the use of the creative arts at the undergraduate level to assist students in understanding complex subjects, such as biological processes.

Goals and Objectives for the Practice Session

This practice session will focus on the development of course content in which analogy and artistic mediums are employed to exemplify the development of schemas for students. The importance of choosing core concepts for student projects will be explored. A variety of artistic tools will be provided to allow participants to create their own Celltasia project. Actual student projects will be available for participants to examine and discuss. Time will be devoted to discussions of methods on integrating creative arts into a variety of disciplines.

Description of the Practice to be Modeled

Students are assigned a cell process or structure on the first day of class. As there are ten topics and approximately 40 students, more than one student will have each topic, and they may work together or alone. The basic assignment has two components. First, they must represent the structure/process in an artistic medium of their choosing. Second, they must write a one-two page description of how their creative endeavor accurately represents their topic. The last week of class is devoted to the presentations. I reserve a common area in the Natural Science building, produce a formal program of the event, and invite fellow faculty and administration officials.

 In the course, we utilize a "bottom up" approach. We begin with atoms, and how they interact to form the simple organic molecules that comprise all cells. Next we focus on how the molecules interact to form the structures of the cells and how the structures interact to form a functional unit (cell). We investigate cellular metabolism and

processes, such as gene expression and regulation, reproduction and death. Success in the course requires the ability to absorb a large body of disparate facts, simultaneously integrating and synthesizing them into a coherent understanding of how cells function and interact to produce the amazing variety of life all around us. As a sophomore-level course, it is often the first exposure for students to this level of analysis and learning. I utilize animation, diagrams and analogy to help students "see" the unseen. They tend to politely nod and indicate they understand. But, they struggled with exam questions that ask them to explain, in their own words, the structure and function of a cell. I came to realize they did not understand analogy, how to conceptualize abstract concepts and synthesize information. They did not know how to integrate the new information into their existing concepts of biological processes. I realized I needed to *explain and model* the skill set required for successful understanding of course material. Students also needed the opportunity to practice the skills.

In this practice session, the participants will experience a "mini" cell biology course. I will lecture on a few cell structures and processes, modeling the methods utilized over the course of the semester, including the "Cell Biology Players"- student "volunteers" that assist me in acting out cell processes. Participants will be encouraged to develop and discuss their own analogies and schema for their particular disciplines Art materials will be available to allow participants to create their own Celltasia projects. Actual student Celltasia projects will be presented and discussed.

References

Armbruster, B (1996). Schema theory and the design of content-area textbooks. *Educational Psychologist*, 21, 253-276

Cutraro, J., Ojalvo, H.E. (2010). Ideas in motion: illustrating basic science concepts. Retrieved November 2011 from http://learning.blogs.nytimes.com/2010/10/27/ideas-in-motion-illustrating-basic-science-concepts/

Edens, K.M., & Potter, E.F. (2001). Promoting conceptual understanding through Pictorial representation. *Studies in Art Education*,42(3), 214-233.

Hancock, Y. & Onsman, A. Using analogy to teach complex concepts in Science: The true story of 'Ellie the Electron'. Retrieved October 2011 from http://www.aare.edu.au/05pap/han05274.pdf

Jacobs, V.R., Goldberg, M.R., & Bennett, T.R. (1999) Teaching Core Curriculum Content Through the Arts. Retrieved May 2010 from http://www2.csusm.edu/goldberg/teaching_core_curriculum_content.htm

Schallert, D. L. 1982. "The significance of knowledge: A synthesis of research related to schema theory." In Otto and White 1982. *Reading expository material.* New York: Academic.

Tan, O. S., Parsons, R. D., Hinson, S. L., & Sardo-Brown, D. (2003). *Educational psychology: A practitioner researcher approach. An Asian Edition*. Singapore: Thomson.

Wismayer, S.A. (2011). Schema theory: an introduction. Retrieved October 2011 from http://metablog.borntothink.com/wp-content/uploads/2011/07/1932-Bartlett-Schema-Theory.pdf

Comedy in the Classroom: Creating a More Enjoyable and Inclusive Atmosphere Through Humor

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Abstract: Laughter is a powerful force. It helps relieve tension, promotes better, more positive moods, and strengthens social bonds. In the classroom, humor has its own purpose. In all types of classrooms from Engineering to English and from Computer Science to Communication, professors can use humor to engage students in the material, to create a more relaxed atmosphere, and to encourage students to feel a part of the class. Additionally humor in the classroom makes the experience more rewording for the teacher. Humor can also be used to offend and to create a hostile, divisive climate, so care needs to be taken in its use. This practice session will focus on how to introduce appropriate comedy into a class. Techniques for creating an environment in which students can laugh (and be laughed at) will be presented along with examples of how to avoid potential problems.

Literature Review

One of the primary theories of comedy is the Relief Theory. This is primarily a psychological/physiological theory of comedy. One of the most important proponents of the Relief Theory is Sigmund Freud whose primary work on the subject is found in his J*okes and Their Relation to the Unconscious (1966)*. In this work, Freud essentially argues that through laughter we release pent up psychic energies that are normally held in reserve. This is a gross oversimplification of his theory, but most versions of the relief theory are similarly concerned with the release of tension and the psychological basis and benefit of humor and laughter. A more modern version of this theory put forward by Walter Koch is described as: "With the comic . . . we are led from a state of high arousal (intellectual and emotional alarm) to one of relief" (1989, p. 48). This description obviously emphasizes the psychological and physical connection of humor and how the theory attempts to describe comedy as a release or a coping mechanism. In a high stress environment like the classroom, there is often the need for just such a release that comedy and humor can provide. Watson and Emerson suggest that the use of comedy can help people relax and make them more open to learning by reducing anxiety and helping them feel more upbeat and energetic (1988). All of these benefits help people feel good, encouraging the students to perceive the classroom experience as more positive with the added benefit of increasing their engagement.

Of course what is perhaps of even more importance and relevance is the pedagogical benefits of using comedy in the classroom, both for direct student learning as well as for creating a more inclusive atmosphere for students. Friedman and Friedman describe this type of humor as "bonding humor" and it helps create a unity that can help cross racial, social, gender, and other social fracture lines in the classroom (2003). Gilliland and Mauritsen suggest that some care should be taken in the use of humor in the classroom such as focusing on making fun of oneself rather than the student (1971). Obviously, making fun of students could embarrass or make them uncomfortable in the class, thereby creating the opposite of the desired effect by potentially alienating the students instead of integrating them into the classroom. By making fun of oneself, the professor models proper use of humor and demonstrates that self critique and by extension critique of others is acceptable and constructive. Gilliland and Mauritsen also caution that the humor should relate to the topic and to the students. One of the reasons, of course, in relating the humor to the topic is that this can function as a mnemonic device. Ziv has shown that when the humor is related to concepts, students showed improvement in learning and recall (1988).

Certain types of humor, of course, work better than others for teaching and creating inclusive environments. For instance students like stories, comments, jokes, and professional humor, humor that can be narratively or thematically linked to the content (Torok, McMorris, & Wen-Chi, 2004). On the other hand, they did not like puns, cartoons, riddles, sarcasm, or things that were considered to be more offensive types of humor. They also preferred humor in the interactive classroom experience with the professor than they did to having humor on tests (Torok, et al., 2004). Taking tests seems to be a high anxiety moment and rather than appreciating humor, it is likely more of an annoyance or distraction from the serious task they are undertaking.

Goals and Objectives

Upon completing this session, participants will be able to:
- Explain the benefits of using humor in the classroom,
- Develop strategies for group building using humor,
- Explore methods of integrating comedy and course content,
- Describe situations where humor may be inappropriate and the types of humor that may be offensive,
- Plan how to incorporate appropriate comedy in to their own class materials, and
- Reflect on their own use of humor with their students.

Description of Practice

During the session, participants will examine methods of introducing humor into the classroom during lectures, in group work or group discussions, and in evaluation. They will observe examples of comedy related to course concepts and comedy related to group building and creating a more open environment. A portion of the session will focus on how to set the environment to avoid unintentionally offending students. This includes topics that may be especially sensitive and where a lack of understanding may undermine the humor's intended effect (i.e. ignorance $\neq$ bliss).

Discussion

Discussion among session participants will mainly be directed towards encouraging participants to think about how they might incorporate comedy and humor in their own classes in ways that will best serve the goals of group building and learning. Participants will be encouraged to share ideas and evaluate how these teaching techniques will benefit themselves and their students.

References

Freud, S. (1966). *Jokes and Their Relation to the Unconscious* (J. Strachey, Trans.). London: Routledge & Kegan Paul.

Friedman, L. W., & Friedman, H. H. (2003). I-Get-It as a Type of Bonding Humor: The Secret Handshake. *SSRN eLibrary*.

Gilliland, H., & Mauritsen, H. (1971). Humor in the classroom. *The Reading Teacher, 24*(8), 753-761.

Koch, W. A. (1989). *The Wells of Tears: A Bio-Semiotic Essay on the Roots of Horror, Comic, and Pathos*. Bochum: Studienverlag Dr. Norbert Brockmeyer.

Torok, S. E., McMorris, R. F., & Wen-Chi, L. (2004). Is humor an appreciated teaching tool? *College Teaching, 52*(1), 14-20.

Watson, M. J., & Emerson, S. (1988). Facilitate learning with humor. *Journal of Nursing Education, 27*(2), 89-90.

Ziv, A. (1988). Teaching and learning with humor: Experiment and replication. *The Journal of Experimental Education, 57*(1), 5-15.

Critical Research Collaboration: A Strategy for Developing Reflective Teachers

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Abstract: There has been a growing interest from educational researchers in addressing the problems of teaching and learning in Higher Education. However, as the problems generate more research, in many faculties it is not easy to help the teachers to know, understand and reflectively apply the results of HE research in their classrooms. A strategy for developing reflective teachers is *Critical Research* as a collaborative process between educational researchers and disciplinary academics, for the aim of thinking and developing teaching in HE. The aim of this workshop is to simulate a collaborative activity between researchers and teachers were the *Critical Research Collaboration* model is applied. We would like that the participants in the workshop: (a) describe an actual situation that needs change, (b) address their concerns (as teachers or as researchers) expressing their ideal situation and negotiate possibilities to change, (c) imagine their institutional and practical obstacles, (d) asses their solutions and plausibility, and finally, (e) reflect on the meaning of collaboration in this model and its possibilities to promote reflective teachers in HE.

Literature Review

Many universities are interested in pedagogical changes that help them to meet the demands of our society. As a consequence, in the last two decades, research in Higher Education (HE) has become a growing field, and some universities have developed different strategies to improve teaching. One of the great challenges is to help university teachers to know, understand and apply the results of HE research in their classes. One prominent application of HE research is seeing teaching as a complex procedure that facilitates students' learning, or students' knowledge-construction processes (Lindblom-Ylänne, Trigwell, Nevgi, & Ashwin, 2006; Lueddeke, 2003). However, developing practices that embody such a view is not easy because academics have to develop three core activities — research, teaching and administration—, and they are looking for good strategies that help them to give "better courses" with a guarantee of "proven solutions" developed by academics in education. Since there are not magic formulas for teaching, the uncritical consumption and application of pedagogical knowledge do not empower teachers for future changes, nor develop deep reflective teachers that can adapt their courses to new circumstances. One strategy for empowering university teachers is to promote reflective practitioners (Schön, 1991) as part of teacher training process. However, many university teachers will not necessarily engage in a formal training program. Instead, they may be willing to volunteer to introduce some changes in their classes in collaboration with researchers in education.

For conceiving the characteristics of such venture, the *Critical Research Collaboration* (Skovsmose & Borba, 2004, see Figure 1) model can be a good option to carry out a collaborative, reflective process of change. Critical Research is a form of participative, educational research that focuses on the changes in the classroom, and it represents a form of collaboration between the teacher and the researcher as a response to particular educational problems. Critical research is the process of interplay between an existing practice (current situation), a new organization of practice (arranged situation), and an ideal situation informed by a theory (imagined situation). There are three different processes related to the collaboration between teachers and researchers that define the qualities of the research: First, the relationship between the current situation and the imagined situation is mediated by a *pedagogical imagination*. We can
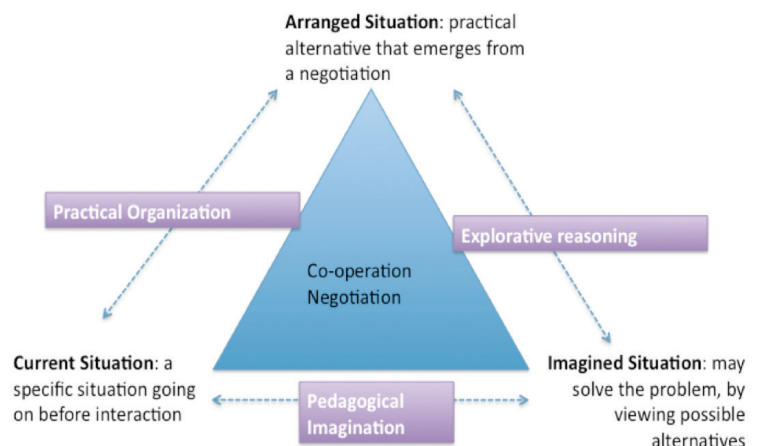
Figure 1. Model of critical research indicating the processes of collaboration involved (Skovsmose & Borba, 2004, p. 216)

interpret this process of pedagogical imagination as the type of actions and conceptualization that help us to create imagined situations used many resources as the practical knowledge of the teacher, the contributions that researchers can make in relation to the theoretical field of pedagogy and other research. Second, the relationship between the current situation and the arranged situation is established by a *practical organization.* In this level the co-operation and negotiation are discussed in a wider context: to bring the imagined situation to reality, it may be necessary to negotiate new spaces, time distributions, activities, assessment forms, etc. In many cases, these negotiations involve not only researchers and teachers but also administrators. Third, *explorative reasoning* means the analytical process of reconsidering the imagined situation in the light of experiences related to the arranged situation. The *explorative reasoning* is an analytical tool that helps to see those possibilities that have been acted, their possibilities as well as limitations when imagining and implementing a new pedagogical discourse.

This differs from much pedagogical experimental work, where the teachers are not part of the negotiations and decision-making. In this sense, Critical Research is an opportunity to teacher professional development at the University because, through the negotiation of pedagogic meanings, the teachers can develop a reflective practice and appropriate pedagogic ideas and tools.

Goals and Objectives

Upon completion of the session, participants will be able to:
1. Understand the model for the purpose of setting collaboration between university teachers in subject areas and educational researchers with the purpose of researching and improving teaching practice,
2. Develop strategies to imagine and negotiate possibilities to change in a specific educational problem, and
3. Reflect on the characteristics and qualities of collaboration process between teachers and researchers.

Description of Activities

Participants in this workshop will be organized in groups to engage in a role-play. Some will be teachers, others will be researchers and they will try to analyze possibilities of change in a class situation: What is the Current situation? What will be the ideal situation for the teachers? What will be the ideal situation for the researchers? Are there some theories/ideas/ past practices that teachers or researches know that can help? What would be the Imagined situation? What will be the possibilities to introduce the change? Witches are the limitations for the change (physical space, time, administrative)? How would be the people that negotiate? Which would be the difficulties that can the group imagine for the implementation? Finally, the facilitators will lead a discussion presenting the groups' ideas. Elements from a collaborative critical research between educational researchers and physics staff at Universidad de los Andes (Colombia) and Aalborg University will be introduced to illustrate and ground the groups' discussions. This part will contribute to give meaning to the pedagogical imagination, practical organization, and explorative reasoning, as qualities of the collaboration.

Discussion

The challenge for many change processes in university pedagogy is to make it permanent. As a teachers and researchers, we believe that developing a reflective teacher is an important empowering tool because that teachers can learn about their practice and can adapting it to new circumstances. In this sense Critical Research is an opportunity to develop a deep reflection through the negotiation between teachers and researches.

References

Lindblom-Ylänne, S., Trigwell, K., Nevgi, A., & Ashwin, P. (2006). How approaches to teaching are affected by discipline and teaching context. *Studies in Higher Education, 31*(3), 285-298.

Lueddeke, G. R. (2003). Professionalising teaching practice in higher education: A study of disciplinary variation and 'teaching-scholarship'. *Studies in Higher Education, 28*(2), 213-228.

Schön, D. A. (1991). *The reflective practitioner. How professionals think in action.* London: Arena, Ashgate Publishing Limited.

Skovsmose, O., & Borba, M. (2004). Research Methodology and Critical Mathematics Education. In P. Valero & R. Zevenbergen (Eds.), *Researching the Socio-Political Dimensions of Mathematics Education* (Vol. 35, pp. 207-226): Springer Netherlands.

Democratic Practices in Education Today: Engaging First-Year College Students as Citizens

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Abstract: "We don't only need to fix our schools; we also need to fix our democracy" (Karp, n.p., 2011). Karp's comment supports the contentions behind a new freshman seminar entitled *Learning for Liberation,* the second in the two-part first-year seminar series. This practice session will share the experience of teaching this general education, core-curricular, thematic course to 35 predominately white, affluent, privately-educated students. The course was created to encourage critical thinking on public education history and current policies in an effort to allow students, regardless of background, to see themselves as stakeholders in the public education process. The presentation focuses on facilitating critical dialogue, using democratic teaching methods and engaging student assignments.

Objectives

Upon completion of the practice session, participants will be able to:
1. Identify teaching strategies that model democratic practices and encourage critical thinking,
2. Develop course assignments that reflect attention to student engagement, and
3. Revise existing syllabi to incorporate these practices and strategies.

Literature Review

Recently, *Rethinking Schools* editor, Stan Karp pondered where social justice advocates and activists today need to focus their attention : "Where we go from here … depends in part on our ability to reinvent and articulate this missing equity agenda and to build a reform movement that can provide effective, credible alternatives to the strategies that are currently being imposed from above. Because, in the final analysis, what we need to reclaim is not just our schools, but our political process, our public policy-making machinery, and control over our economic and social future. In short, we don't only need to fix our schools; we also need to fix our democracy" (n.p., 2011). The first-year general education course which is the focus of this presentation is an answer to Karp's and others' calls for an education structure accountable for producing citizens able to carry on our form of government in the U. S. (Dantley & Tillman, 2006; Dewey, 1985; Noddings, 2008).

The course assignments encourage in-person and online debate of controversial issues, particularly in regard to how the U.S. might better address the challenges faced in an era of accountability and standardization (Virginia Department of Education, 2009). The students in the course, at the beginning of their tertiary educations, are the policy-makers of the future; assignments and discussions intentionally engage them on topics such as school choice, business models applied to educational practice or standardized testing (Kober, 2006; Ravitch, 2010).

Sample of Course Goals

Through readings in education history, theory, pedagogy, current events, and government policy, the student will:
• Reflect critically on the U.S. education system and its effect on student empowerment/marginalization,
• Analyze and evaluate current government regulation of education in the U. S., and
• Apply all course material to the students' own experiences with the education system.

In forming and teaching to these goals, inclusive and transformative pedagogical methods were implemented with the intent of encouraging students to question the authority and expertise of all stakeholders involved with today's education decisions, including their course instructor (Darling-Hammond, L., French, J., Garcia-Lopez, S., 2002; hooks, 1994).

Description of Practice

This session is an example of how democratic principles may be addressed across the wide, cross-curricular framework within higher education, in, or outside of the PreK-12 field. Participants will use the course syllabus,

course assignments and student work samples to brainstorm on how they might incorporate readings, projects, and class assignments that require students to personally engage their subject.

I will begin with a very brief "get-to-know-you" activity that replicates the way I begin the sample course as I have found that a congenial environment generated early on allows higher quality dialogue. I will use small groups to allow for maximum participation – groups may be homogenous by discipline if participant make-up allows. These groups will formulate answers to the discussion questions with sample activities / assignments that are discipline specific and will record their ideas on large paper to be posted around the room. Sharing will be accomplished by a gallery walk of the posters generated by each group with participants encouraged to comment on other's ideas by attaching "sticky notes" to each poster during the "walk" time. Large group discussion will follow if time allows. Participants are encouraged to bring course syllabi into which they would like to incorporate "real-world" learning opportunities.

Discussion questions will include but are not limited to the following:
1. How are democratic ethics represented in your classroom?
2. How can college students across disciplines be encouraged to engage in critical reading and writing on topics of importance to society?
3. How much power should students have in directing their own learning paths?

Discussion

Student feedback on the course was positive (per course evaluations) and the content is applicable to others teaching in higher education, specifically in teacher education or cross-curricular programs. Facilitating student access to information on controversial topics and guiding them toward thoughtful, critical scholarship is a tall order, especially with freshmen, but most students actively pursued the challenges set before them in class. Asking them to act as idea developers in the national discussion about what we should do with the challenges facing our education system was a first step toward getting them to recognize the educational process as a major component of our democratic way of life, no matter what discipline they enter later in their college careers.

References

Dantley, M. E., & Tillman, L. C. (2006). Social justice and moral transformative leadership. In C. Marshall, & M. Oliva. (Eds.), *Leadership for social justice: Making revolutions in education* (pp. 16-30). Boston, MA: Pearson.

Darling-Hammond, L., & French, J., & Garcia-Lopez, S. (Ed.). (2002). *Learning to teach for social justice*. New York: Teachers College Press.

Dewey, J. (1985). *Democracy and education 1916: The middle works of John Dewey 1899 – 1924 volume 9.* Carbondale, IL: Southern Illinois University Press.

Hooks, b. (1994). *Teaching to transgress: education as the practice of freedom*. NY: Routledge.

Karp, S. (2011). Who's bashing teachers and public schools and what can we do about it? Rethinking Schools, Spring 2011. Accessed 4/11/11 from http://www.rethinkingschools.org/archive/25_03_karp.shtml.

Kober, N. (2006). *A Public Education Primer: Basic (and sometimes surprising) facts about the US education system*. Washington, DC: Center on Education Policy.

Noddings, N. (2008). Schooling for Democracy. *The Phi Delta Kappan, Vol. 90*, No. 1, pp. 34-37 Retrieved 1/21/2010 at http://www.jstor.org/stable/20493545.

Ravitch, D. (2010). *The death and life of the great American school system: How testing and choice are undermining education.* New York: Basic Books.

Virginia Department of Education. (2009). Standards of Learning Currently in Effect for Virginia Public Schools. *Home Page.* 31 Oct. 2009. 17 Nov. 2009 http://www.pen.k12.va.us/VDOE/Superintendent/Sols/home.shtml

Design Thinking as a Method for Authentic Student Collaboration for Inquiry-Based Learning

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Abstract: An authentic inquiry-based learning environment engages all participants in problem solving and catalyzes meaningful discovery. However, many faculty work under the shadow of a lecture course model that actively inhibits collaboration, and struggle to find classroom methods that create this authentic environment. Design thinking proposes an alternative approach where ambiguous problems act as the ground for learning disciplinary subject content as well as higher-order thinking skills. In this session, participants-as-students will explore an inquiry-based problem and experience the types of authentic student collaborations that occur during the design thinking processes of exploration, ideation, and experimentation.

Description and Literature Review

Increasingly, many undergraduate disciplines are engaging inquiry-based learning in their curriculums. Broadly including project- and problem-based learning, active and experiential learning, capstone projects, and inter-disciplinary group work, inquiry-based learning is "constructivist" education which is characterized by student collaboration at the core of its activities (Dewey, 1933; Piaget, 1970; Vygotsky, 1978). Student collaboration has been shown to have significant learning benefits, including improved knowledge retention, motivation, and social skills (Johnson, et. al., 1991; Slavin, 1990). However, the instructional model most familiar to faculty—the three-hour lecture course—has no history of student collaboration; in fact, its methodology actively inhibits it (Bruffee, 1999). Thus, the transition to high quality inquiry-based learning in the classroom has suffered from a "lecture course mentality," where collaborative assignments rigidly organize students, tell them what to do and how to do it, and force their answers to be similar so that they can be graded. The inauthentic nature of this work is evident to everyone; faculty don't see their discipline practiced within its normative realms of ambiguity, and students sense the hypocritical construct of problem solving without risk, reward, or real required effort. The collective frustration in such a classroom can mean that the significant learning outcomes of student collaboration are lost.

The mistake here is not in the structure of assignments as much as in the *characteristics of problem ambiguity* and the *method of problem solution* required for engagement. Student collaboration is inauthentic where the problem lacks potential variability in its outcome, the problem is already set, or insists on a prescribed path of investigation and the work is not directed by reflection. Alternatively, "problem-setting" and "reflection-in-action" (Schön, 1983) are the foundations of design thinking inherent to disciplinary and professional problem solving (Jonassen, 1997, 2000; Lawson, 1990; Rowe, 1987). The process of design (Messarovic, 1964; Watts, 1966) [Figure 1a] represents a full integration of problem ambiguity, the iterative process of solution generation, and the discursive aspects of discovery and communication—*which is the logic of high-quality collaboration*. Importantly, these characteristics are discipline specific and integrated with disciplinary subject content. The construct of design thinking developed by the Hasso Plattner Institute of Design at Stanford University ("Stanford d.school") and HPI School of Design Thinking at the University of Potsdam is a useful revision of the design process toward a cogent application of design methodology (n.d.) [Figure 1b]. It involves a cyclical process of exploration and understanding, the creation of ideas, and experimentation and testing, all which revolve around the definition of points of view central to the problem (Hasso-Plattner-Institut, n.d.; Lime Design, 2011). Design thinking links together the *ambiguity of the*
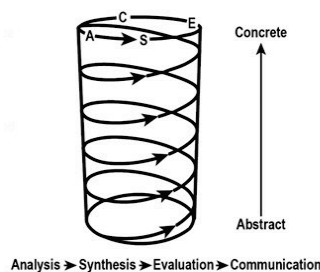
Figure 1a. Design process (from Rowe, 1987, p. 48, after Mesarovic, 1964, Watts, 1966).
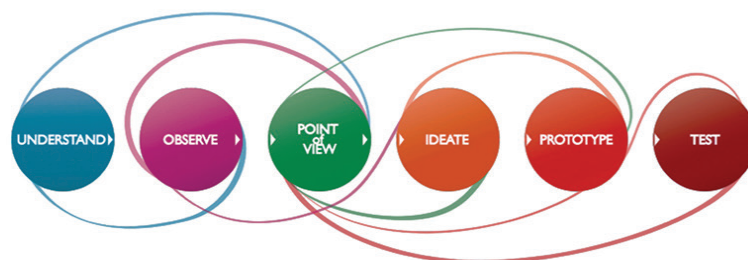
Figure 1b. Design thinking process (Hasso-Plattner-Institut, n.d.).

problem and the *method of problem solution* through the universal problem-solving activity of "design." When these constituent problem elements are properly constructed for the classroom, both work together to establish deep and authentic student collaboration—and the attendant student learning outcomes that make such collaboration desirable.

Objectives and Activities for the Practice Session

This session will be introduced through a brief overview of student collaboration issues in problem- and project-based pedagogies since the early 1990s culminating in what we see today as "inquiry-based learning." Contemporary design thinking and learning methods will be explained, and the intersection between "inquiry" and "design" will be posited. Participants will learn how inquiry problems are created for the classroom; (1) from course learning objectives and disciplinary practice norms, (2) an ambiguous problem statement is developed that, (3) requires a particular structure of classroom instruction, facilitation, and student collaboration, and (4) can be evaluated with valid and reliable forms of assessment. The application of the Stanford d.school design thinking process to an inquiry-based problem will be explained by focusing on the different stages of potential student collaboration. Participants-as-students will then be given an accessible inquiry-based problem from the perspective of a student, where they will discover and characterize the types of collaborations that occur during the design thinking processes of exploration, ideation, and experimentation. The session will conclude with a critique of the instructional design of the problem and discuss concrete ways that the student collaborations could be better developed.

After the session, participants will be able to (1) see their discipline's normative realms of ambiguity and problem solving as a resource from which to create high quality inquiry-based learning, (2) understand the foundation of design thinking as a methodology for student collaboration, (3) apply the design thinking elements of exploration, ideation, and experimentation, and (4) see how authentic student collaboration is manifest and can be developed in a wide range of disciplines.

References

Bruffee, K. A. (1999). *Collaborative Learning* (2nd Ed.). Baltimore, MD: The Johns Hopkins University Press.
Carroll, M. & Britos Cavagnaro, L. (2011). Overview of the design thinking process. Design thinking workshop handout v.0311. Pleasanton, CA: Lime Design Associates.
Dewey, J. (1933/1997). *How we think: a restatement of the relation of reflective thinking to the educative process*. Mineola, NY: Dover.
Hasso-Plattner-Institut School of Design Thinking. (n.d.). *Design thinking process*. Retrieved 22 September 2011, from http://www.hpi.uni-potsdam.de/d_school/designthinking/components.html?L=1
Johnson, D. W., Johnson, R. T., & Smith, K. A. (1991). *Cooperative learning: increasing college faculty instructional productivity*. ASHE-ERIC Higher Education Report No. 4. Washington, D.C.: The George Washington University School of Education and Human Development.
Jonassen, D. H. (1997). Instructional design models for well-structured and ill-structured problem-solving learning outcomes. *Educational Technology Research and Development, 45*(1), 65-94.
Jonassen, D. H. (2000). Toward a design theory of problem solving. *Educational Technology Research and Development, 48*(4), 63-85.
Lawson, B. (1990). *How designers think: the design process demystified* (2nd Ed.). Oxford: Butterworth.
Mesarovic, M. D. (1964). *Views on general systems theory*. New York: John Wiley and Sons.
Piaget, J. (1970). *Genetic epistemology*. New York: W.W. Norton & Company.
Rowe, P. G. (1987). *Design thinking*. Cambridge, MA: MIT Press.
Schön. D. (1983). *The reflective practitioner: how professionals think in action*. New York: Basic Books.
Slavin, R. E. (1990). Research in cooperative learning: consensus and controversy. *Educational Leadership, 47*(4), 52-55.
Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University.
Watts, R. D. (1966). The elements of design. In S. A. Gregory (Ed.), *The design method* (p. 85). London: Butterworths.

Developing Cross-Campus Collaborations to Support Peer Leaders

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Abstract: Peer leaders have proliferated on many college and university campuses as faculty and administrators observe the positive impact that these undergraduates have on student learning in and out of the classroom. However, peer leaders need support mechanisms and guidance to function most effectively. In this session, we will examine a collaboration between Residence Life and the Office of First Year Experiences at Virginia Tech to create a foundation for peer leaders employed as resident advisors (RAs) who impact learning and engagement in the residence halls through the use of the Virginia Tech Common Book, *This I Believe II*. We will discuss the process by which we have developed a structure to support RAs as they find ways to use *This I Believe II* in the residences halls, provide examples of how the RAs are incorporating the book into their programming, and discuss the assessment of our support program. RAs who have incorporated *This I Believe II* into their programming this year will describe their experiences.

Literature Review

Institutions of higher education are fragmented with divisions and departments working independent of each other (Guarasci, 2001; Kezar, 2005). Often illustrating this divide are the academic units of a college and the divisions for student services. Collaborations between these units to address particular challenges facing college students are not a new practice. In particular, successful models of collaboration center efforts on supporting student learning (Kezar, 2003). Students participating in collaborative programs (between academic affairs and student affairs) display high engagement in their learning and make use of resources available to them (Nesheim, Guentzel, Kellogg, McDonald, Wells, & Whitt, 2007). By adapting to a learning centered paradigm, college educators focus on increasing student learning versus squabbling over "…administrative structures" (Guarasci, 2001, p. 101). In fact, "collaborations between academic and student affairs personnel and organizations have been especially effective in achieving "… better learning for students" (Bourassa & Kruger, 2001, p. 19).

Multiple studies have examined the cognitive and social impact of peer leaders on other undergraduates learning (Dolman, 2004; Giuliodori, Lujan, & DiCarol, 2006). Students are strongly influenced by their peers and often seek their guidance (Newton & Ender, 2000). Resident Advisors serve a key role as a peer leader in the residence halls. These student leaders not only serve a functional role as a programmer and community builder but also reflect to their charges the values of the institution (Johnson & Kang, 2006). Given this, the presenters recommend academic and student affairs administrators consider how together they can collaborate to enhance student learning by creating a foundation for Resident Advisors to impact student learning in the residence halls

Goals and Objectives for the Practice Session

This practice session will focus on two key elements:
1. The role of RAs as guides to learning in the context of a residence hall,
2. The collaboration between an academic affairs unit and a student affairs unit that has developed to support the RAs as they develop and implement programming based on the Virginia Tech Common Book, and
3. Participants in this session will have the opportunity to discuss the role of peer leaders as facilitators of learning and the processes involved in developing and assessing a program to support peer leaders in this function.

Description of the Practice to be Modeled

Participants attending this session will learn how RAs engage first year students at Virginia Tech in learning activities related to the Common Book. In addition, participants will learn how the RAs are supported in their role as peer leaders by mechanisms developed through a cross-campus collaboration. The participants will hear both the experiences of RAs who are creating and implementing this programing and the experiences of the members of the Office of First Year Experiences and Residence Life who are collaborating to support the RAs.

Discussion

For the past two years RAs at Virginia Tech have been involved distributing the Common Book to first year students as well as engaging these students in discussions and activities related to the themes in the book. The Common Book is selected by a university committee and given to all first year and transfer students as they begin their first year at Virginia Tech. Faculty who teach first year and transfer students are encouraged to incorporate the Common Book into their curriculum. RAs are expected to create educational programming using the Virginia Tech Common Book.

The Office of First Year Experiences and Residence Life have collaborated during the past two years to develop a support system for the RAs as they engage their residents with the Common Book. In the first year of the collaboration, a set of learning outcomes were developed specifically related to the Common Book, which at that time was *Animal, Vegetable, Miracle* by Barbara Kingsolver. The Director of the Office of First Year Experiences presented a rationale for the Common Book Project to the RAs during their training, and the RAs received a packet of suggested activities related to the book.

In response to the challenges faced during the first year, members of the Office of First Year Experiences and Residents Life adapted the learning outcomes for the Common Book to fit the Division of Student Affairs Aspirations for Student Learning, which RAs use as a basis for most programming. RAs were introduced to the book in the spring semester (so that they could read the book during the summer), and then were introduced to the Common Book learning outcomes by their supervising Residential Learning Coordinator as they prepared for the fall semester. RAs were also offered a workshop during resident advisor training., In this training they discussed essays from the book and then brainstormed methods to make use of the essays with their respective residents. During the Fall of 2011, members of the Office of First Year Experiences and Residence Life are working collaboratively to assess the program – eliciting information about successful programming as well as the challenges of presenting Common Book based programming – in order to continue to improve the mechanisms in place to support RAs as they engage their first year residents in an exploration of the themes found in the Common Book.

References

Bourassa, D.M & Kruger, K. (2001). The national dialogue on academic and student affairs collaboration. *New Directions for Higher Education*, 116, 9-38.

Dollman, J. (2005). A New Peer Instruction Method for Teaching Practical Skills in the Health Sciences: an Evaluation of the 'Learning Trail'. *Advances in Health Sciences Education*, 10(2), 125-132.

Johnson, V.D, Kang,Y. (2006). Assessing differences in resident assistant confidence in addressing issues of cultural diversity between in three predominately white institutions. *Journal of College and University Student Housing,* 34(1), 31-42.

Giuliodori, M. J., Lujan, H. L., & DiCarlo, S. E. (2006). Peer instruction enhanced student performance on qualitative problem-solving questions. *Advances in Physiology Education*, 30(1-4), 168-173.

Guarasci, R. (2001). Recentering learning: An interdisciplinary approach to academic and student affairs. *New Directions for Higher Education, 116*, 101-109

Kezar, A. (2003). Achieving student success: Strategies for creating partnerships between academic and student affairs. *NASPA Journal 41*(1), 1-22.

Kezar, A. (2005). Redesigning for Collaboration within Higher Education Institutions: An Exploration into the Developmental Process. *Research in Higher Education*, 46(7), 831-860.

Nesheim, B.E., Guentzel,M.J. ,Kellogg, A.H., McDonald,W.M, Wells, C.A., & Whitt, E.J (2007). Outcomes for students of student affairs-academic affairs partnerships programs. *Journal of College Student Development,* 48(4), 435-454.

Newton, F. & Ender, S. (2010). Students Helping Students: A Guide for Peer Educators on College Campuses. 2ed.Hoboken, NJ: Jossey-Bass.

Encouraging the Personal Potential of On-Line Instruction

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Abstract: Implementing a personal view toward education can be realized within the constraints of technology with careful address of simple goals: providing task choices that encourage self-motivation; creating group interactions that develop social and affective skills; and addressing attitudes and habits that improve perceptions of self-worth. *Encouraging the Personal Potential of On-Line Instruction* will encourage educators to explore pedagogy that supports education of the whole learner; individually and in learner relationships. The presenter will share instructional experiences she has had in developing and delivering over a dozen on-line undergraduate and graduate courses. The use of embedded technology tools and sound pedagogical practices that encourage personal and professional growth in non-threatening on-line environments will be explored. Participants will examine operating on-line courses and create applications for their professional use.

Description

Encouraging the Personal Potential of On-Line Instruction addresses the perceived constraints of technology and explores avenues for applications toward the development of learner self-direction and independence and assumed responsibility for learning. Educators strive to educate the whole person, which must allow for increased understanding of self and others (Forbes, 2003). I will model the successful combination of these as I walk participants through active on-line courses. We will see the operation of synchronous and asynchronous course discussions via live chats and discussion boards for group and public communication. I will share lessons learned about establishing sign-in and posting due dates and mandated return dates; why they are important and how they engage students in their learning. We will consider virtual office hours, text boxes, and e-mail for individual communication. I will discuss their role in addressing individuals and encouraging understanding of self. Finally, we will examine structural tools that encourage community as an integral aspect of personal education and on-line learning.

Objectives

The participants are expected to engage in questioning throughout the session. Specifically, they will end the session being able to:
- Recognize reasons for addressing a personal view to on-line course creation,
- Identify practices that promote the education of the whole learner, and
- Apply personal on-line practices to their individual courses.

Literature Review

A personal approach to online instruction encourages educators to look beyond the keyboard, through the computer monitor to the learner as we seek to combine the very best educational theory with effective pedagogy. It further encourages disparate learners to engage across miles and cultures, beyond time zones and borders, outside of histories and misconceptions for the development of the uniqueness in every learner (Miller, 2011). On-site educators have long recognized the value of personalization in their classrooms, creating environments that are welcoming and encourage student involvement. Mandernach's (2009) research found that similar benefits can result from a more personalized learning environment on-line. Nowhere is it more important that we remember the charge of higher education than in our classrooms, and those classrooms are increasingly technology driven. On every college campus, whether considering the instructional approach or the management of course materials, technology is at the center of the 21st century classroom. And when we consider the potential of personalizing the learning environment for students, we can use on-line instructional technology to make that individualized environment possible (Thomas, 2011).

References

Forbes, S. (2003). *Holistic education: An analysis of its ideas and nature.* Brandon, VT: Foundation for Educational Renewal.

Mandernach, J. (2009). Effect of instructor-personalized multimedia in the online classroom. *The International Review of Research in Open and Distance Learning.* 10(3) Retrieved October 2011, from http://www.irrodl.org/index.php/irrodl/article/view/606/1263

Miller, R. (2011). Paths of Learning. Retrieved October 2011, from http://www.pathsoflearning.net/

Thomas (2011). Personalizing learning – The important role of technology. Retrieved October 2011, from http://www.openeducation.net/2010/04/06/personalizing-learning-%E2%80%93-the-important-role-of-technology/

Engagement: Strategies for Engaging the Adult Learner in Interdisciplinary Writing Courses

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Abstract: Adult students bring with them a world of experience and knowledge to the classroom which can be capitalized upon in order to develop and reinforce critical thinking and writing skills. Yet these non-traditional students are often apprehensive about their potential for success after having been out of the classroom for an extended period of time. In this practice session, you will learn how to design courses and assignments which create engaged learners who can become proficient writers in all academic areas of pursuit. You will also learn strategies for incorporating interdisciplinary approaches to writing for non-traditional students that can inspire even the most hesitant writers. Finally, we hope participants will come prepared to be engaged in dialogue about how writing can be included or strengthened within courses already offered in your institution's curriculum.

Literature Review

Numerous factors contribute to the creation of an engaging learning environment where rigorous and relevant learning can take place (Jones, 2008). Active learning strategies exist that naturally contribute to higher levels of student engagement. These strategies include, structured discussion groups and pairs, task-based teaching, and active writing exercises (Jones, 2008; McLaren and Webber, 2009; Lytovchenko, 2009).

Engagement is a critical instructional component of developing confidence and competency in students enrolled in writing courses. The 'writing to learn' 'learning to write' pedagogy focuses on helping students learn discipline specific content while developing stronger critical thinking and writing skills (Britton, Burgess, Martin, McLeod & Rosen, 1975; Bangert-Drowns, Hurley, & Wilkinson, 2004). Discipline specific writing outside of traditional writing courses has been found to help students gain, clarify and consolidate knowledge (Hand & Prain, 2002). Yet, in order to ensure that students develop their writing skills throughout their academic careers, colleges must conceptualize strategies for writing across the curriculum (Lardner, 2008). Writing that actively engages students in the learning process also helps to improve the students' overall academic success (Lardner, 2008).

Adult students in particular benefit from an academic environment that emphasizes engagement. Non-traditional college students often have been employed in professional careers in the work force prior to returning to college (Ntiri, Schindler, & Henry, 2004). Instructors of adult students must become facilitators of engagement in the classroom environment; adult learners often experience competing priorities and benefit from education that has practical applications outside of the classroom (Dinmore, 1997). Often an adult student might best understand a concept through an illustration from the real world. Interdisciplinary adult education combines students' reflections on real world experiences and theoretical, conceptual knowledge (Dinmore, 1997). Interdisciplinary courses embrace collaborative thought, research, and teaching (Ntiri, Schindler, & Henry, 2004).

Utilizing strategies to increase student engagement in various academic settings is beneficial to the student and instructor. Teachers who support, respect, encourage, and mentor their students foster engaged student learning regardless of the content area or student population being addressed (Jones, 2008).

Goals and Objectives for the Practice Session

As a result of attending this session, participants will be able to:
- Define and describe student engagement as it relates to the classroom environment,
- Develop strategies to create engaging academic experiences in a variety of academic areas,
- Develop strategies for engaging instruction in writing courses,
- Identify strategies for maximizing knowledge gained through students' external activities, and
- Identify opportunities for collaborative learning within courses currently offered in the curriculum of their home institution.

Description of the Practice to be Modeled

Participants who attend this session will learn about student engagement opportunities that flourish within a classroom of non-traditional students, ways to minimize student apprehension regarding returning to college, and ways to help build student confidence in writing across the curriculum. Participants will be exposed to and encouraged to engage in dialogue regarding best practices for writing with non-traditional students in interdisciplinary courses.

Participants will be encouraged to identify their own personal real world experiences which best link content knowledge and application. They will also have an opportunity to review sample exercises and coursework from interdisciplinary writing courses for working adult college students.

Discussion

This presentation is based on two instructors' diverse yet parallel experiences from teaching different levels of interdisciplinary academic writing courses to working adult students. It includes practical APPLICATIONS, tried and true BEST PRACTICES, IDEAS for engagement, and discussion regarding potential areas for COLLABORATION within existing institutional curriculum.

References

Bangert-Drowns, R. L., Hurley, M. L., & Wilkinson, B. (2004). The effects of school-based writing-to-learn interventions on academic achievement: A meta-analysis. *Review of Educational Research*, 74, 29-58.

Britton, J., Burgess, T., Martin, N., McLeod, A., & Rosen, H. (1975). *The development of writing abilities.* London: Macmillan Education.

Dinmore, I. (1997). Interdisciplinarity and integrative learning: An imperative for adult education. *Education,* 117(3), 452-467.

Hand, B., & Prain, V. (2002). Teachers implementing writing-to-learn strategies in junior secondary science: A case study. *Science Education,* 86(6), 737-755.

Jones, R.D. (2008). *Strengthening student engagement.* Retrieved from International Center for Leadership in Education, http://www.leadered.com/pdf/Strengthen%20Student%20Engagement%20white%20paper.pdf

Lardner, E. (2008). *Strengthening writing across the curriculum: A practice brief based on BEAMS project outcomes.* Retrieved from Institute for Higher Education Policy website: http://www.ihep.org/assets/files/publications/a-f/BEAMS_Strengthening_Writing.pdf

Lytovchenko, I. (2009). How to make upper-level university English classes more interactive. *English Teaching Forum*, 2, 24-29.

McLaren, I.A.M. & Webber, D. (2009). Writing right: Enhancing student engagement and performance in an ecology course. *International Journal of Environmental & Science Education*, 4(4), 365-380.

Ntiri, D. W., Schindler, R. A. & Henry, S. (2004). Enhancing adult learning through interdisciplinary studies. *New Directions for Adult and Continuing Education*, 103, 41-50.

Engaging Student Learning Through Universal Principles of Design

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Abstract: This practice session will demonstrate how universal principles of design can be used to engage students in learning through more effective visual communication. Drawing from psychological, sociological, and communications theory, design principles enable any instructor to improve teaching and learning media by applying simple yet highly effective techniques. Participants will learn how to apply design principles by critiquing good and bad examples of design, practicing ways to incorporate design principles into their instruction, and exploring accessible technologies for supporting just-in-time design work.

Literature Review

At the core of effective instructional practice is the successful communication of a message from a sender (often, "the instructor") to a receiver (often, "the student"). While an expert in his/her chosen field of study, an instructor in higher education may have little to no training in the effective design of a message in an instructional context. As a result, the instructor may wrestle with how to communicate essential content in the most effective manner and a learner, in turn, may struggle with reception and retrieval of that content.

A number of disciplines have contributed to a significant knowledge base regarding how to design for effective verbo-visual communication. Drawing from the field of information design or information message design, Pettersson (2010) identifies four sets of information design principles, functional, administrative, aesthetic, and cognitive, that offer practical guidance for the effective design of messages. The cognitive set, for example, attends to a message receiver's attention, perception, processing, and memory. In the realm of cognitive science, Norman (2002) discusses how principles such as visibility, mapping, and feedback can support designs that provide a strong conceptual model to users of a message (e.g. learners). In the area of universal design, professionals promote the greater accessibility of a design by applying the principles of perceptibility, operability, simplicity, and forgiveness (Lidwell, Holden, & Butler, 2010).

Regardless of the design principle, or the theory on which it is based, the fundamental goal is to understand how "visual techniques can be used to either emphasize important information or de-emphasize irrelevant details" (Agrawala, Li, & Berthouzoz, 2011, p. 67) in a representation so that an intended message is enhanced.

Goals and Objectives for the Practice Session

Participants in this session will be able to apply foundational and universal principles of design to an information set in order to communicate an identified concept(s) to a target learner. More specifically, a participant will be able to:
- Analyze an information set to identify the core concept(s) to be communicated,
- Identify the most salient and trademark features of the identified concept(s),
- Brainstorm the most relevant design principles to convey trademark features,
- Identify viable media options to support the application of the identified design principles to content, and
- Design a message using the identified design principles and media to communicate more effectively to a target learner.

Description of the Practice to be Modeled

During this practice session, I will share a set of universal design principles that may be applied by any instructor, regardless of disciplinary focus, to improve communication with students. For each principle, I will explain the design concept, how it applies to effective communication, and how it applies to effective instructional design for enhanced human learning. Through visual support, we will explore design principles further by examining good and bad examples of design, both in everyday life and in educational contexts. Next, we will play with the design principles by applying them to familiar, yet challenging, conceptual content. We will discuss how we applied the principles, what design decisions we made, and why we made them. We will continue by examining the affordances of varied technologies, from low- to high-end, for developing our instructional designs into usable form for instruction. Finally, we will end with a redesign of content from our respective disciplines. Each participant will

identify a concept(s) that he/she is responsible for conveying to target learners and redesign that concept(s) using relevant design principles to enhance communication.

Discussion

An instructional design professional is responsible for analyzing learning and human performance needs in order to design, develop, implement, and evaluate instructional programs, products, and processes to meet those needs. As part of his/her education and training, the instructional design professional learns how to analyze content to determine salient features of that content which can then be targeted with specific strategies to support learning. Often these strategies include applying specific principles of design to the representation of that content with the goal of enhancing communication with learners (Dick, Carey, and Carey, 2008; Rowland, 1993).

Most instructors in higher education are not trained instructional design professionals and do not have access to such professionals to help them analyze content for the optimal design of learning media. Yet, instructors need to develop instruction that is effective with students – and, supports their professional aspirations as teachers. Further, with many other professional demands to meet, higher education instructors need more tools in their "teaching tool belt" for designing effective instructional resources while keeping their time investments reasonable.

Any instructor in higher education can master some foundational principles of design to apply to his/her instructional materials in order to enhance verbo-visual communication without the need for extensive design expertise, time commitments, or high-end technologies. The goal of this practice session is to share a set of practical design principles that instructors can apply immediately to their instructional practice, likely enhancing the learning and performance of their students as well as their experience as teachers in the higher education context.

References

Agrawala, M., Li, W., & Pauly, M. (2011). Design principles for visual communication. *Communications of the ACM, 54*(4), 60-69.

Dick, W., Carey, L., & Carey, J.O. (2008). *The systematic design of instruction (7th ed.)*. Boston, MA: Allyn & Bacon.

Fleming, M.L., & Levie, W.H. (Eds.). (1993). *Instructional message design (2nd ed.)*. Englewood Cliffs, NJ: Educational Technology Publications.

Lidwell, W., Holden, K., & Butler, J. (2010). *Universal principles of design (2nd ed.)*. Gloucester, MA: Rockport Publishers.

Norman, D. (2002). *The design of everyday things*. New York: Basic Books.

Pettersson, R. (2010). Information design: Principles and guidelines. *Journal of Visual Literacy, 29*(2), 167-182.

Rowland, G. (1993). Designing and instructional design. *Educational Technology Research and Development, 41*(1), 79-91.

Sevilla, C. (2002). *Information design desk reference*. Menlo Park, CA: Crisp Learning.

Williams, R. (2004). *The non-designer's design book: Design and typographic principles for the visual novice*. Berkeley, CA: Peachpit Press.

Yeh, H., & Cheng, Y. (2010). The influence of the instruction of visual design principles on improving pre-service teachers' visual literacy. *Computers & Education, 54*, 244-252.

Enhanced Learning Outcomes From Didactic Experimenting

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Abstract: The practice session will discuss a didactic experiment carried out at an MA program at The Copenhagen Business School in Denmark. The experiment aimed at encouraging students to take charge of their learning processes via a course program design that would motivate students to take an active part in selecting and presenting material in the language studied, just as they were encouraged to systematically use evaluation processes to enhance learning outcomes. Eventually, increased grade point averages suggested that the experiment was successful. The session will also point the way for future activities, e.g. through the use of web 2.0 solutions in the form of social-media enhanced learning platforms.

Literature Review

The experiment was born out of a wish to empower students to take increased responsibility for their own learning. The literature on learning looks at the subject from different angles: (1) From an angle of empowerment where focus is on establishing knowledge, skills and competencies via learning loops (Nygaard et.al.; Huczynski & Buchanan), (2) From an angle focused on the nature of learning through motivation and surface vs. deep learning[1] (Dörnyei; Biggs) and (3) From the perspective of learning processes, viz. feedback/feedforward, habitus/reflection, toil/'exuberence' (Hermansen) and strong vs. week learning (Bramming). The literature was put to the test in the CBS experiment and will be discussed during the presentation.

Goals and Objectives for the Practice Session

The practice session will begin by introducing the rationale behind the design of the course in question and then move on to focus on how the various dimensions of learning were (attempted to be) translated into didactic practice and how the course design was made to be flexible in terms of teacher and student input and output. In addition, the session will focus on the changing role of teachers from the traditional role where the teacher assumes (almost) full responsibility for classroom action to a more coaching and facilitating role where the students assume an increasing share of responsibility for their own learning and hence also for classroom activities. In continuation of this point, it will be discussed to what extent teachers should have a plan B up their sleeve in case their (adult, in this case) students fail to meet their end of the bargain. Another point to be discussed is the extent to which web 2.0 solutions in the form of social-media enhanced learning platforms may facilitate initiatives of this nature and help harness learning in the students.

The goal of the discussion is to exchange experiences with and seek inspiration from colleagues who may have worked with similar or related experiments.

Results

After the first run of the experiment in 2007, a comparison was made between the grades obtained by the participating students and the students who took a course which was tested in the same way the year before. In both courses, the students were given two grades: one for the content and one for their oral communicative competence. The grade point average for content in the 2006 course was 8.77, whereas the corresponding grade point average for the 2007 workshop course was 8.99 on a grade scale consisting of non-pass grades 00, 03, 5, and pass grades 6, 7, 8, 9, 10, 11 and 13. The number of students participating in the 2006 course was 95 against 102 in the 2007 course.

The grade point average for oral communicative competence in 2006 was 8.64, and the corresponding grade point average for the 2007 workshops was 8.95. The numbers suggest that the transition from a fairly traditional, teacher-controlled course to the more student-centered workshop format did indeed have some measurable effect on the exam results. If we disregard the students that failed, the grade point average for content rose from 8.92 to 9.03, while the oral communicative competence grade point average went up from 8.84 to 8.95.

While the improvements in grade point averages are moderate, they would still suggest that didactic experiments would be justified and could prove successful, but it also raises the question of whether such experiments can be extended to other courses and programs.

So how did events in the workshop match with the learning theories? In terms of empowerment, the higher grade point averages indicate that the students' problem-solving competence did indeed improve.
In regard to the learning loops; a few student comments suggest that development did indeed take place: "It helped you reflect more on things ahead of the final exam ", and "I have become better at quickly finding an angle to a topic and narrowing it down to a brief text". Particularly this last comment where the student reflects on having become better at suggests that some loop effect has taken place.

Looking at motivation, it was found that in both the quantitative and the qualitative data collected after the course, the students commented on their increased level of motivation in the workshops compared to more formal courses; to quote one student: "I have become much more confident about making presentations, just as my general business knowledge has improved; I'm sure I'll need that later on."

Looking at the workshops in terms of learning processes, one student commented: "it was really nice to be able to select your own topic and select the relevant information and then present it; this is always a challenge in itself"; another student suggested that "the students have been far more dedicated in this course than in others" – both comments would suggest the drawing on previous experience to anticipate future outcomes; also, "it was really nice" suggests that the student in question was not put off by the toil dimension but seemed to lean towards the 'exuberance' end of the scale.

Whether strong learning was actually achieved is questionable; there are no student responses in the data that address this aspect; however, in future courses it would be possible to build in challenges that could be perceived as crises by the students, e.g. by giving different information to different student groups in the process.

Discussion

1. What difficulties will faculty face when wanting to implement change in the classroom?
2. What are the likely student reactions, and how may they be addressed?
3. What experiences can we share to address the empowerment of students (and faculty) in higher education?

References

Biggs, J. (2003). Teaching for Quality Learning at University. (2nd ed.) Maidenhead: Open University Press, McGraw-Hill Education.

Bramming, P. (2007). An argument for strong learning in higher education. *Quality in Higher Education* 13.1: 45-56.

Dörnyei, Z. & Skehan, P. (2003). Individual differences in second language learning. *In Catherine L. Doughty and Michael H. Long (eds.) The Handbook of Second Language Acquisition.* Malden, Oxford, Melbourne, Berlin: Blackwell, pp. 589-630.

Hermansen, M. (2005). Relearning. Copenhagen: Danish University of Education Press / CBS Press.

Huczynski, A. A. & Buchanan, D. A. (2007). Organizational Behaviour. (6th ed.), London: FT Prentice Hall.

Nygaard, C., Højlt, T. & Hermansen, M. (2008). Learning-based curriculum development. *In Grant Harman et al. (eds.) Higher Education Vol. 55. The Netherlands: Springer Science+Business Media, pp. 33-50.*

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[1]The term 'deep learning' is used in the European sense of the term; the author is aware that e.g. Tochon uses the term in a US setting in connection with language learning strategies.

Evaluating Educational Programs: Framing and Pinpointing the Guiding Questions

Tim Burrows, *Educational Research, Virginia Tech*
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Abstract: With today's focus on accountability in higher education, it becomes even more important to conduct rigorous evaluations of educational programs. The process of designing such a rigorous evaluation is often deceivingly complicated. One of the greatest challenges can be pinpointing the appropriate outcomes for an evaluation. In approaching larger, institution-wide educational programs this aspect becomes even more crucial; one effective way to accomplish this is through the development of well-constructed *guiding questions* and a well-constructed *logic model*. In this session, specific attention will be given to discussing how the authors narrowed their focus by developed guiding questions and a logic model, using the proposal they developed for the Common Book program at Virginia Tech as an example of this process.

Literature Review

Accountability in higher education necessitates the development of strong evaluations to determine the merit of educational programs. The authors plan to present their work in designing and proposing an evaluation of Virginia Tech's Common Book program, a program that seeks to develop a community of learners by engaging incoming freshman in a common reading experience. This program is implemented through several different offices and organizations on campus, including Residence Life, First Year Experiences, and individual faculty members. Specific attention will be given to discussing how the authors narrowed their focus and developed the guiding questions and logic model for this evaluation.

Guiding questions in an evaluation, especially for such a broad-reaching program, are vital for several reasons: first, well-constructed guiding questions help determine the appropriate research methodology; second, guiding questions help evaluators decide what, specifically, they need to investigate, preventing wasted time and money; finally, well-framed guiding questions help ensure that the interests of the requesting stakeholder are aligned with the investigations of the evaluators (Fitzpatrick, Sanders, & Worthen). These guiding questions should be specific, actionable, and co-constructed with the stakeholder requesting the evaluation. In an evaluation a logic model can be used as an advance organizer for designing and conducting an evaluation, as a framework for understanding elements of the program, in preparing and presenting the evaluation findings, and finally, it can be used for communication (Wholy, Hatry, & Newcomer, 2004). Overall, both guiding questions and logic models serve vital organizational roles in rigorous evaluations (Fitzpatrick et al., 2011).

Objectives

Upon completion of this session, participants will be able to:
1. Understand and explain the importance of guiding questions in developing evaluations for educational programs,
2. Understand and explain the importance of logic models in developing evaluations for educational programs
3. Understand and develop guiding questions for a theoretical evaluation, and
4. Understand and develop the components of a logic model for a theoretical evaluation

Description of the Practice to be Modeled

The authors will present their experiences in developing an evaluation for a large educational program. This will include some time given to explaining the process of narrowing focus, developing guiding questions, and creating a logic model. The authors will also explain the components of a logic model, including inputs, outputs, outcomes, assumptions, and external factors. Multiple examples will be provided for guiding questions and logic models to demonstrate differences that occur depending on the unique characteristics of the program being evaluated. After modeling this overall process for the group, the participants will be guided through the process in small groups using a theoretical educational program. By the end of the sessions, participants will have created guiding questions and a logic model, and will have the materials necessary to help them develop these two crucial aspects of evaluation in the future.

Discussion

This presentation draws on a problem-based learning teaching approach in which participants will construct their answers as members of a group. With this approach in mind, participants will initially be provided with enough information through direct instruction that they will have the foundational knowledge necessary to participate. The majority of the session will focus on having participants make use of and become familiar with this new knowledge. Materials that review and elaborate on the essential concepts will be provided to all participants to aid in this process.

References

Fitzpatrick, J. L., Sanders, J. R., Worthen, B. R. (2011). Program evaluation: Alternative approaches and practical guidelines (4th ed.). Boston, MA: Pearson.

Wholey, Joseph S., Hatry, Harry P., Newcomer, Kathryn E. (2004). Using Logic Models, *Handbook of Practical Evaluation* (7-32). California: Jossey-Bass.

Expanding Engagement to Thousands: Communication Tools for Large Classes

John Boyer & Katie Pritchard, *Geography Department, Virginia Tech*

Abstract: Classrooms and students simply do not look or function like they have in the past. As classes grow larger, faculty members often find themselves searching for successful strategies to make connections with their students and to offer meaningful ways for students to connect with one another. If one faculty member can effectively connect 3,000 students in one class – anyone can! This practice session will demonstrate innovative ways to create networking opportunities within a large class so that students engage with course content, the faculty, and their peers. Participants will learn how to integrate a variety of technological tools to foster valuable interaction through online office hours, blogging/micro-blogging/re-blogging, online forums, live video-streaming, podcasts, instant messaging/chat, lifecasting, and even social media. Hands-on demonstrations will involve participants in the actual use of tools such as USTREAM, Facebook, TUMBLR, Twitter, and Woopra. Just as Walt Disney said, "It is kind of fun to do the impossible".

Literature Review

Establishing and maintaining effective communication, class participation, and student involvement in a large class can pose a challenge for many faculty members. It often requires an innovative approach and willingness to "think outside the box" to create the necessary opportunities for each student to actively engage with the faculty member as well as with their classmates. It is important to get students involved in their classes and to maintain interactive connections with faculty members because of the critical associations between student learning and student involvement and engagement (Astin, 1999; Kuh, 2005). When students are actively involved and engaged within a class, they are more successful academically (Newmann, Wehlage, & Lamborn, 1992) and report higher levels of satisfaction within their social realm (relationships with self and others), their learning and/or academic skills, the class, and within the context of the larger institution (Astin, 1999; Kuh, 2005). Therefore, the use of technology as a pedagogical tool for purposeful interactivity, even in large groups, can afford faculty members with alternative means to support student success, satisfaction, and the growth of essential student skills such as inquiry, collaboration/teamwork, communication, problem-solving, and critical thinking (Association of American Colleges and Universities, 2007; Moore, et al., 2007; Neo & Neo, 2009).

Goals and Objectives

As a result of this session, participants will be able to:
- Recognize the role of fostering increased communications (professor-to-student and student-to-student) within the student engagement paradigm,
- Associate large classes with meaningful opportunities for student engagement, investment, and learning,
- Identify innovative sources of technology to make connections beyond the classroom, and
- Develop strategies to increase communication in any field, program, or class.

Description of Practice

This presentation introduces strategies to effectively sustain communication and impact student success in a large class through the use of widely available, technological tools. Participants will learn about a variety of ways to use technology to facilitate and supplement class attendance. Participants will have the opportunity to use the tools during the session and will be encouraged to participate in active discussions surrounding the use of these tools within their own classes.

Discussion

Active and sustained avenues of communication are vital elements for teaching and learning in a large class of students. In an effort to build and maintain lines of communication, incorporating the use of supportive technological tools can help faculty members effectively interact with their students, support student-to-student interaction, and foster student involvement, engagement, and ultimately, achievement. Specific instances of using

technology as an effective tool for class interactivity within a course of approximately 3,000 students will be demonstrated and discussed.

References

Association of American Colleges and Universities. (2007). *College Learning for the New Global Century: A Report from the National Leadership Council for Liberal Education & America's Promise.* Retrieved November 2, 2010, from http://www.aacu.org/advocacy/leap/documents/GlobalCentury _ExecSum_final.pdf

Astin, A. (1999). Student involvement: A developmental theory for higher education. *Journal of College Student Development, 40*(5), 518-529.

Kuh, G. D. (2005). *Exploring different dimensions of student engagement: 2005 annual survey results.* Bloomington, IN: Center for Postsecondary Research and Planning.

Neo, M., & Neo, T. (2009). Engaging students in multimedia-mediated constructivist learning – students' perceptions. *Educational Technology & Society, 12*(2), 254-266.

Newmann, F., Wehlage, G., & Lamborn, S. (1992). The significance and sources of student engagement. In F. Newmann (Ed.), *Student engagement and achievement in American secondary schools.* New York: Teachers College, Columbia University.

Fueling a Passion for Discovery Through Use of New Media in Undergraduate Science Courses

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"To raise new questions, new possibilities, to regard old problems from a new angle,
requires creative imagination and marks real advance in science." - Albert Einstein

Abstract: A strong undergraduate science program will enable its students to develop scientific minds, filled both with disciplinary knowledge and a sharp set of analytical tools. Add in an excellent research experience, and a student assumes the soma of a scientist, technically adept and with the stamina to carry out exhausting investigations. But how does one cultivate the *soul* of a scientist – how does one attain a state of unquenchable curiosity and reverence of Nature as the increasingly detailed picture that science paints reveals her to be more and more beautiful? For this last outcome, a new medium may be required, one less bounded by scientific and academic conventions. In this practice session, participants will gain a glimpse into the souls of young scientists at Virginia Tech and Baylor. Presenters will share the design and preliminary assessment results of the Virginia Tech initiative, and lead the session participants in a microblogging exercise (using Twitter) that will help them meet their own "inner scientist." Finally, participants will leave the session with the know-how to create their own blogs and support their students in blogging.

Literature Review

With the goal of cultivating the scientific souls, undergraduate science classes have begun to employ student blogging activities. For example, Baylor University recently employed student blogging (http://courseblogs.atlhub.net/bearsinthesea) in the National Genomics Research Initiative (http://www.hhmi.org/news/SEA20091217.html), an undergraduate research program of the Science Education Alliance sponsored by the Howard Hughes Medical Institute. Local assessment of the blogging component revealed clear and compelling narratives of student progress in "thinking like scientists" over the two semester experience. Students gained important skills in metacognition and an increased sense of self-efficacy by creating narratives of their learning (Campbell, 2011). Moreover, the blogs helped to form a community of practice among these undergraduates, one in which their instructors--who also blogged--became facilitators and coaches instead of mere information dispensaries. Because their blogs were on the open web, the "Bears in the SEA" participants were also visible to the national SEA cohort, and HHMI personnel have become interested in adopting this model across the entire SEA initiative, sensing that an "open notebook" model of scientific exchange can and should include opportunities for richly mediated narratives that elaborate not only the data gathered but the changes in affect and cognition within the learner, changes that reflect the learner's "falling for science" in the manner Sherry Turkle (2008) analyzes in her anthology of that name.

Goals and Objectives for the Practice Session

The main objective for the practice session is for participants to understand the expressive, elaborative, and "stochastic tinkering" affordances in these media, as well as begin to work empirically with these affordances. Toward this end, by the completion of the workshop, participants will have:
1. Learned how to create a blog to reflect on their own teaching and learning,
2. Blogged or tweeted their reactions to the examples presented in the workshop,
3. Identified potential applications of new media in their own teaching, and
4. Been given the opportunity to join a community of practice reflecting upon new media in teaching and learning.

Practice to be Modeled

Inspired the example at Baylor, a professor at Virginia Tech has begun a similar blogging initiative. This fall, students in a sophomore level Cell and Molecular Biology class, as well as their professor, Dr. Jill Sible, blogged weekly about anything related to the course and their learning within it. A rich profusion of personal reflection has

resulted, one that links living and learning in posts ranging from reflections on the physical learning environment (a SCALE-UP classroom) to the informal sharing of scientific knowledge when a student in the class explains to her friend why she feels faint after a workout in the gym (a matter of glucose levels in the blood). As at Baylor, these narratives form a kind of auto-ethnography of the growing scientific imagination. By sharing these narratives, students experience not only a community of practice but a community of curiosity as expressed in relatively informal, yet more personally authentic, reflection. Such reflection models the learning-as-bonding paradigm emphasized by educational researcher Christopher Dede (2008). Through their writing, students also engage in the elaboration that neuroscientist John Medina (2008) identifies as a crucial part of deep and integrative learning.

Discussion

At Baylor and Virginia Tech, the practice of blogging in undergraduate science courses has far exceeded the expectations typically made of new learning technologies. The blogs may or may not facilitate better memorization, retention or recall of scientific facts that are presented by the expert/instructor. More importantly, blogging has promoted independent scientific inquiry, research, integration and evaluation. Initially students may blog because it is a course requirement; however, somewhere along the way, most students (and their professors) blog because they must -because they have become scientists who have something to say!

References

Bransford, John, et al. How People Learn: Brain, Mind, Experience, and School: Expanded Edition (Washington, D.C.: National Academies Press, 2000).

Campbell, Gardner. "Narrate, Curate, Share: How Blogging Can Catalyze Learning." "Viewpoint," Campus Technology, August 19, 2011

Charon, Rita. Narrative Medicine (Oxford, Oxford University Press, 2006).

Dede, Christopher. "Theoretical perspectives influencing the use of information technology in teaching and learning." In J. Voogt and G. Knezek, Eds., International handbook of information technology in primary and secondary education (New York: Springer, 2008), 43-62.

Immordino-Yang, M. H. and Damasio, A. (2007), "We Feel, Therefore We Learn: The Relevance of Affective and Social Neuroscience to Education." Mind, Brain, and Education, 1: 3–10.

Medina, John. Brain Rules (Seattle, WA: Pear Press, 2008).

Rosenberg, Scott. Say Everything: How Blogging Began, What It's Becoming, and Why It Matters (New York: Crown, 2009).

Turkle, Sherry, ed. Falling For Science: Objects In Mind (Cambridge, Mass.: MIT Press, 2008)

Get Thee to the Library! Incorporating Inquiry Into First Year Programs

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Abstract: On the national level, First Year Experience (FYE) programs and their emphasis on supporting undergraduate students in their first year of higher education have become increasingly pervasive. Many of these FYE programs, like Virginia Tech's, focus on the element of "inquiry" in order to help students develop critical information skills at the very beginning of their university experiences. As information literacy experts, librarians are natural partners in these endeavors. Indeed, recent literature underscores the value of collaborations including librarians in FYE programs (Einfelt & Turley, 2009; Kelleher & Laidlaw, 2009).

Utilizing recent literature focusing on the implementation of first year experience in institutions of higher education across the United States (Schrader & Brown, 2008;), this presentation highlights what is unique about the involvement of the University Libraries in the Pathways curriculum. It also addresses the challenges of, and solutions for, creating a scalable, effective enterprise for high-volume library instruction. Although multiple studies from the fields of both library science (Bailey, 2003; Baker, 2006;) and education (Einfalt & Turley, 2009) have provided compelling evidence that collaboration between libraries and academic departments results in increased student performance, information retention, and critical thinking skills, few have presented concrete methods for achieving and facilitating large-scale growth in collaborative programs like that currently unfolding at Virginia Tech. Yet growth of the Pathways program has been remarkably swift: in less than two years, the initial participation of 18 classes has more than tripled, and in the fall 2011 semester librarians instructed roughly 2500 students as a result of the FYE initiative. By providing illustrations of teaching and learning rubrics, student outcomes, and assignments, this poster aims to illustrate how library-based instruction can foster creative methods of learning and diverse forms of first-year student engagement across campus.

References

Bailey, V. (2003). Libraries and the first-year experience. *College & Research Libraries News,* 64(6), 373.

Baker, L. (2006). Library instruction in the rearview mirror: a reflective look at the evolution of a first-year library program using evidence-based practice. *College & Undergraduate Libraries,* 13(2), 1-20.

Einfalt, J., & Turley, J. (2009). Developing a three-way collaborative model to promote first year student engagement and skill support. E-Journal of Business Education & Scholarship of Teaching, 3(2), 41-48. Retrieved from EBSCOhost.

Kelleher, M., & Laidlaw, S. (2009). A Natural Fit: The Academic Librarian Advising in the First Year Experience. College & Undergraduate Libraries, 16(2/3), 153-163.

Schrader, P. G., & Brown, S. W. (2008). Evaluating the first year experience: Students' knowledge, attitudes, and behaviors. *Journal of Advanced Academics, 19*(2), 310-343.

Global Perspective: Rethinking the PhD

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Abstract: Graduate education reform has recently become of interest both in the U.S. and abroad. The Global Perspectives Program is an element of the Transformative Graduate Education (TGE) initiative at Virginia Tech. The Global Perspectives Program is used to give graduate students a study-abroad experience in order to explore global trends in higher education such as exploring faculty roles and responsibilities in higher education from a global perspective, organization and structure of higher education in other countries, student demographics, academic programs, and more. The students spend two weeks traveling to various European universities, meeting with university officials, administrators, faculty, and students and gathering information on a research topic related to global higher education. They also spend time learning about local cultures and lifestyles and how they inform university and student life. In addition, the Virginia Tech students collaborate with graduate students from the University of Basel to conduct a two-day "Global Graduate Student Seminar" held at Virginia Tech's Center for European Study and Architecture (CESA) in Riva San Vitale, Switzerland. The two groups engage in scholarly discussions on a selected topic, sharing their own graduate school experiences and learning from the various experiences of the group to draw conclusions about timely and relevant issues in graduate education and research. The experience culminates with the Global Graduate Education Summit at the Swiss Embassy in Washington, D.C., where the global cohort presents their findings. This seminar will discuss the use of study-abroad to introduce graduate students to global higher education as well as the results from the most recent group of students to participate in this innovative program.

Literature Review

In 1999, ministers from twenty-nine European countries signed the Bologna Declaration, officially initiating the Bologna Process. The Bologna Declaration has currently been adopted by 46 countries with the objective of creating the European Higher Education Area. The Bologna Process hopes to promote mobility within EU universities, enhance research in globalized and increasingly complex societies, and increase the attractiveness of European higher education (Castaner, et al, 2010). Discussion of PhD reform has not been limited to the Bologna Process in Europe. Recent articles in the top scientific journal *Nature*, indicate a growing understanding that the current U.S. system is not effective in preparing top academicians for a national global market (McCook, 2011) and that the academic and scientific job markets are not equipped to handle the amount of PhD's being produced ("Fix the PhD", 2011). As universities around the world indicate the need to become more international and interdisciplinary, the incorporation of global graduate education experiences becomes an important tool to PhD education.

Objectives

Upon completion of this session, participants should be able to:
1. Understand how study-abroad programs can play a vital role in reshaping graduate education to prepare aspiring scholars for the future of higher education,
2. Formulate and discuss strategies for advancing and reshaping the graduate education experience, and
3. Recognize the need for graduate education reform as conveyed by the student identified results of the 2011 Global Perspectives experience.

Description of Practice

The need for graduate education reform has become evident through large, multi-national initiatives such as the Bologna Process in Europe, the explosion of interdisciplinary degree programs to meet needs of emerging fields, and even as the focus issue in top scientific journals. It appears academia is beginning to recognize that considerable changes must be made to graduate education in order to adequately prepare the next generation of scholars. The question of how to reform PhD programs was recently undertaken by a group of PhD students through the 2011 Global Perspectives Program developed through Virginia Tech's (Blacksburg, VA) Transformative Graduate Education (TGE) initiative. In its sixth year, the program is designed to give students the chance to explore graduate education between the United States and Europe. This year the Virginia Tech students also collaborated with students from the Universität Basel (Basel, Switzerland). The U.S. students visited multiple European universities and the Swiss students mirrored with a tour of U.S. institutions. The program culminated with the "Global Graduate Education Summit" held at the Swiss Embassy in Washington, DC where both groups presented their findings on *Rethinking the PhD* in terms of education and research.

The objective of the program was to provide students from both institutions with an opportunity to explore trends and issues of global higher education, such as faculty roles and responsibilities, organization and structure of academic programs, and student demographics. Giving the students a global perspective of multicultural education was aimed to demonstrate the increased challenge faced by both faculty and graduate students in their graduate advising relationship and future peer collaborations due to differences in cultural communications. Furthermore, the students themselves hailed from varied graduate programs including rhetoric and writing, history, biology, linguistics, chemistry, classical studies, philosophy, engineering (mechanical, civil, transportation), international affairs, psychology, computer science, nutrition, economics, bioinformatics, counseling, biochemistry, and law which also exposed the differences in "language" and expectations between fields. This diversity also allowed the students to better understand the landscape of different programs and encourage discussion on ways to comprehensively improve the graduate curriculum, regardless of individual research areas. After two weeks of in-depth exploration, the group established what they see as the biggest problems with current graduate education and consequently began to explore solutions to absolve these issues. They concluded that one of the greatest deficits in current PhD curriculums is that students are being trained as specialized researchers not academicians. This leads to a market saturated with PhDs lacking much more than the ability to research one niche area, limiting their ability to move up through standard academic channels and effective collaborate on interdisciplinary projects. The students suggested that skills in communication, research, critical thinking and leadership are all imperative for the future of preparing future academic leaders.

Overall the participating students gained a wealth of knowledge and understanding through the Global Perspectives experience. Student feedback includes improvement in reflection, understanding the landscape of global higher education, and the importance of international collaborations for improving both graduate education and research. Most importantly, the students responded that the experience would have a positive influence on their future career in academia.

Discussion Questions

1. How does exploring global higher education through study abroad enhance the graduate student experience?
2. What skills are most important for the contemporary graduate student to obtain?
3. What are the differences between European and U.S. graduate education?
4. What are the biggest obstacles for graduate education reform?

References

Castaner, L., Ginsztler, J., Kopp, R., Nethercot, D., Remseth, S., Richter, K., Zuna, P. (2011). Bologna Process 2010 Final Report. *European Council of Applied Sciences, Technologies and Engineering Annual Report.*
Fix the PhD. [Editorial]. (2011). *Nature, 472*, 249-260.
McCook, A. (2011). Education: Rethinking PhDs. *Nature, 472*, 280-282.

How to Motivate Students in Online Courses:
Using the MUSIC Model of Academic Motivation to Connect Research to Practice

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Abstract: Although online courses have become more common in higher education, there is little research to help instructors understand how to motivate and engage students in online courses in ways that will facilitate their learning. The purpose of this session is to discuss how research related to online courses can be interpreted within the MUSIC Model of Academic Motivation (Jones, 2009; www.MotivatingStudents.info) to help instructors design more effective online courses. This session includes an explanation of the MUSIC model, as well as a summary of current research related to motivation in online courses. In addition, examples of online instruction will be analyzed and discussed. Participants will leave this session with (a) an understanding of the major components of the MUSIC Model of Academic Motivation, (b) knowledge of some current research related to motivating students in online courses, and (c) the ability to analyze whether online practices are consistent with motivation research and theories, with the ultimate goal of having the ability to design online instruction to motivate students.

Literature Review: The MUSIC Model of Academic Motivation

The MUSIC Model of Academic Motivation was developed to help instructors design courses that engage students in learning (Jones, 2009, 2010b). The MUSIC model consists of five components that have been researched extensively over many years by many researchers to support student engagement in academic settings: e*M*powerment, *U*sefulness, *S*uccess, *I*nterest, and *C*aring. The model components are explained briefly in this section and more fully in Jones (2009) and at www.MotivatingStudents.info.

The empowerment component refers to the amount of perceived control that students have over their learning. Instructors can empower students by supporting their autonomy. The *usefulness* component involves the extent to which students believe that the coursework (e.g., assignments, activities, readings) has utility for their short- or long-term goals. One implication is that instructors need to ensure that students understand the connection between the coursework and their goals. The success component is based on the idea that students need to believe that they can succeed if they put forth the appropriate effort. Instructors can foster students' success beliefs in a variety of ways, including making the course expectations clear, challenging students at an appropriate level, and providing students with feedback regularly. The interest component includes two theoretically distinct constructs: *situational interest* and *individual interest* (Hidi & Renninger, 2006). *Situational interest* refers to immediate, short-term enjoyment of instructional activities, whereas *individual interest* refers to internally activated personal values about a topic. Instructors can create situational interest by designing instruction and coursework that incorporates novelty, social interaction, games, humor, surprising information, and/or that engenders emotions (Bergin, 1999). Instructors can develop students' individual interest in a topic by providing opportunities for them to become more knowledgeable about the topic and by helping them understand its value (Hidi & Renninger, 2006). The caring component includes two components: *academic caring*, associated with the degree to which students feel connected and supported in their courses, majors, and educational goals, and *personal caring*, associated with the degree to which students feel socially and personally connected and supported. (Johnson, Johnson, & Anderson, 1983). To support academic caring, instructors can demonstrate that they care about whether students successfully meet the course objectives. To support personal caring, instructors can demonstrate that they care about students' general well-being and welfare.

Motivating Factors in Online Instruction

Researchers have begun to study course characteristics that impact students' motivation in online courses. Findings from these studies are consistent with the MUSIC model, as will be discussed briefly in this section in the order of empowerment, usefulness, success, interest, and caring. *Empowerment* has been shown to be a predictor of undergraduate students' effort, course ratings, and instructor ratings in online courses (Jones, 2010a; Jones, Watson, Rakes, & Akalin, 2011). *Usefulness* has also been studied in online courses; for example, researchers have found that students in one study accessed examples and exercises more frequently when they were provided with information about the usefulness of the material (Sansone, Fraughton, Zachary, Butner, & Heiner, 2011). Other studies of undergraduate and graduate students have also documented that when instructors make the course content

more *useful* and relevant to students' *interests*, students' motivation increases (Kim & Frick, 2011). Students' perceptions of their ability to *succeed* in using technology have also been shown to be related to their motivation (Kim & Frick, 2011). Further, different uses of technology, such as podcasts can be one way to increase students' *situational interest* in the material (Bolliger, Supanakorn, & Boggs, 2010). Finally, online instructors' *caring*, as demonstrated through their online presence and the immediacy of feedback that they provide, has also been documented to be motivating to students (Baker, 2010; Jones et al., 2011).

Goals and Objectives

Participants who pay attention during the session will leave with:
- An understanding of the major components of the MUSIC Model of Academic Motivation
- Knowledge of some current research related to motivating students in online courses
- The ability to analyze whether online practices are consistent with motivation research and theories, with the ultimate goal of having the ability to design online instruction to motivate students

Description of Practice

The session will be organized in the following order:
- *10 minutes* – I will begin the session with an explanation of the MUSIC model to ensure that participants understand the basic tenets of the model
- *10 minutes* – I will briefly discuss some key findings from researchers who have studied motivation in online courses and use these findings as examples of how the MUSIC model can be used to design and diagnose online instruction
- *25 minutes* – I will show real-world examples from online courses and ask participants to work in groups to analyze whether the examples would promote students' motivation based on motivation research and theories
- *5 minutes* – I will answer final questions from participants

References

Baker, C. (2010). The Impact of Instructor Immediacy and Presence for Online Student Affective Learning, Cognition, and Motivation. *Journal of Educators Online*, 7(1).

Bergin, D. A. (1999). Influences on classroom interest. *Educational Psychologist, 34*, 87-98.

Bolliger, D. U., Supanakorn, S., & Boggs, C. (2010). Impact of podcasting on student motivation in the online learning environment. *Computers & Education*, 55(2), 714-722.

Hidi, S., & Renninger, K. A. (2006). The four-phase model of interest development. *Educational Psychologist, 41*(2), 111-127.

Johnson, D. W., Johnson, R. & Anderson, A. (1983). Social interdependence and classroom climate. *Journal of Psychology, 114*(1), 135-142.

Jones, B. D. (2009). Motivating students to engage in learning: The MUSIC Model of Academic Motivation. *International Journal of Teaching and Learning in Higher Education, 21*(2), 272-285.

Jones, B. D. (2010a). An examination of motivation model components in face-to-face and online instruction. *Electronic Journal of Research in Educational Psychology, 8*(3), 915-944.

Jones, B. D. (2010b, October). *Strategies to implement a motivation model and increase student engagement.* Paper presented at the annual meeting of the International Society for Exploring Teaching and Learning, Nashville, TN. Retrieved from http://www.MotivatingStudents.info

Jones, B. D., Watson, J. M., Rakes, L., & Akalin, S. (2011). *Motivating students in an online Personal Health course*. Manuscript in preparation.

Kim, K., & Frick, T. W. (2011). Changes in student motivation during online learning. *Journal of Educational Computing Research*, 44(1), 1-23.

Sansone, C., Fraughton, T., Zachary, J. L., Butner, J., & Heiner, C. (2011). Self-regulation of motivation when learning online: The importance of who, why and how. *Educational Technology Research and Development*, 59(2), 199-212.

Identifying Aspirations for Student Learning to Drive Transformative Curricula

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Abstract: This session walks participants through the process of developing transformative curricula based on their "aspirations for student learning." This aspirations-driven curriculum model helps faculty construct meaningful learning opportunities that tap into the aspects of their disciplines that excite them. The session begins with the premise that our aspirations for student learning (e.g. critical thinking, curiosity, agency) must be nurtured; they do not arise as natural bi-products of higher learning. With that in mind, participants are asked to consider how they might achieve their aspirations in the context of their courses and then challenged to work collaboratively to construct a lesson or semester plan that cultivates those aspirations. Afterwards, participants are challenged to consider how to assess aspirations-driven curriculum. By the end of the session, participants should be able to (1) identify their aspirations for student learning, (2) identify concrete strategies for engaging their aspirations for student learning, (3) identify dynamic methods for assessing their aspirations for student learning.

Literature Review

- Simon and Schifter (1991) studied mathematics teachers who received intensive professional development in constructivist philosophy. The data revealed that this program shaped their perceptions of learning, which had direct impact on their classroom practices.
- Instructors who have been socialized in traditional, teacher-centered learning environments need to reconsider the roles of both students and faculty in order to develop more effective learning experiences (Huba & Freed, 2000)
- Assessment should be redirected from satisfying grading requirements to improving learning. This transition is not easily achieved, as many institutional stakeholders expect instructors to conform to traditional models (Shepard, 2000)
- Malnarich and Lardner (2003) propose that faculty who are interested in integrating disciplines reflect on their "aspirations for student learning" in order to uncover common threads.
- Savery (2000) suggests that "we cannot talk about what is learned separately from how it's learned."

Goals and Objectives

1. Participants identify their aspirations for student learning,
2. Participants lean concrete strategies for engaging their aspirations for student learning, and
3. Participants explore dynamic methods for assessing their aspirations for student learning.

Description of the Practice Modeled

This session walks participants through the process of developing transformative curricula based on their "aspirations for student learning." This aspirations-driven curriculum model helps faculty construct meaningful learning opportunities that tap into the aspects of their disciplines that excite them. The session begins with the premise that our aspirations for student learning (e.g. critical thinking, curiosity, agency) must be nurtured; they do not arise as natural bi-products of higher learning. With that in mind, participants are asked to consider how they might achieve their aspirations in the context of their courses and then challenged to work collaboratively to construct a lesson or semester plan that cultivates those aspirations. Afterwards, participants are challenged to consider how to assess aspirations-driven curriculum.

Discussion

The literature suggests that learner-centered, integrated, collaborative, problem-based curriculum is the most effective means of developing meaningful learning experiences that cultivate higher order thinking. The method proposed in this session helps instructors develop curriculum that realizes these practices.

References

Huba, M. E., & Freed, J. E. (2000). *Learner centered assessment on college campuses: Shifting the focus from teaching to learning.* Needham Heights, MA: Allyn & Bacon.

Malnarich, G., & Lardner, E. D. (2003). Designing integrated learning for students: A heuristic for teaching assessment and curriculum design. *www.evergreen.edu/washcenter/resources/.../Winter2003-Number1.*

Shepard, L. A. (2000). The role of assessment in a learning culture. *Educational Researcher*, 29(7), 4-14.

Simon, M. A., & Schifter, D. (1991). Towards a constructivist perspective: An intervention study of mathematics teacher development. *Educational Studies in Mathematics*, 22(4), 309-331.

Incoming Freshmen from Dual Enrollment High School Programs:
A Pilot Learning Community Model to Meet Their Needs

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Abstract: Freshmen with dual enrollment credits present unique challenges to universities. Variable instruction and uneven student experiences create uncertainty about the skills of incoming students in essential areas such as written communications. This practice session will focus on a pilot project that utilized common courses, integrative assignments, and out-of-class activities to build a learning community for new freshmen with dual enrollment English composition credit. Tools and techniques for improving writing outside of traditional college composition courses will be discussed as well.

Literature Review

During the 2002-03 academic year, 57% of all high schools had students participating in college-level courses (National Center for Educational Statistics, 2005). Known as "dual enrollment," these programs have been touted by governors and legislators as a way to motivate students to finish high school while giving them a head start in college. Although popular with elected officials, students, and their parents (Hoffman, Vargas & Santos, 2008), dual enrollment is more controversial in higher education. Studies have shown that dual enrollment programs lack consistent oversight, leading to uneven student experiences, and do not support student learning (Tinberg & Nadeau, 2011). Due to articulation agreements, public universities have been required to accept dual enrollment credit (Catron, 1998). As a result, college and university instructors are looking for new ways to support dual enrollment students once they reach college.

Goals and Objectives

Participants in this practice session will explore unique challenges of working with new freshmen who have dual enrollment credit for English composition. Attempts to build a learning community for these students will be addressed including a common reader, integrative assignments, extracurricular events, and instructor cohort. "Lessons learned" during implementation of the program will be shared as will tools and techniques for improving student writing outside of a traditional college composition course.

Description of Practice

CORE Connections is a pilot project at Radford University. About 75 new freshmen with dual enrollment credit for English Composition were recruited during summer orientation. Students were pre-enrolled in special sections of a one-credit university transition course (UNIV 100) and a required interdisciplinary seminar (CORE 201). The purpose of this program was to create a learning community where knowledge, skills, and relationships would extend beyond the classroom into integrated assignments and activities.

Participating students were given a common reader at the conclusion of summer orientation. On an enclosed bookmark was their first writing assignment, which was due in both classes on the first Friday of the semester. This assignment served as a baseline writing assessment. Other integrative assignments included a lecture series related to the common reader and social gatherings. Instructors in both courses met regularly to discuss issues, plan for future events, and confer about student problems.

Discussion

Dual enrollment programs make college credit available to high school students, but the quality of these programs is highly variable because of the different ways in which instruction is provided. Some high schools send these students to classes at a local college or university, where they share class time with traditional college students. Other programs have the college send its own instructors to the high school to provide college-level instruction in the course of the high school day. Still other programs recruit high school teachers with master's degrees to teach

courses that are hybrid high school and college courses, so that a course may count as both first-year college composition and 12th grade English. Unfortunately, in these latter programs, the high school course requirements often dominate the college course requirements, and the students may not end up receiving a college-level education for the credit they receive. The presenters will discuss ways the program seeks to enhance the skills of those students who received credit from strong programs while helping those who received credit from weaker programs.

An additional issue for high school and college faculty to consider is the maturity level of students who are transitioning directly from a dual enrollment program into their major courses. The presenters will discuss how the CORE Connections program seeks to support these students as they jump past the traditional transition to college aspects of freshman-level courses.

References

Catron, R. K. (1998). The Virginia plan for dual enrollment: A historical perspective. *Inquiry, 2*, 13-21.

Hoffman, N., Vargas, J., & Santos, J. (2008). On ramp to college: A state policymaker's guide to dual enrollment. Retrieved from http://www.jff.org/sites/default/files/OnRamp.pdf

National Center for Educational Statistics. (2005). *Dual enrollment of high school students at postsecondary institutions: 2002-03*. Retrieved from http://nces.ed.gov/surveys/peqis/publications/2005008/index.asp?sectionID=3A

Tinberg, H., & Nadeau, J. (2011). Contesting the space between high school and college in the era of dual-enrollment. *CCC, 62*, 704-724.

Incorporating Habits of Mind Into Science and Technology Curricula

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Abstract: This practice session will explore the development and incorporation of habits of mind into science, technology, engineering, and mathematics (STEM) curricula. The term *habits of mind* was most recently popularized by Costa and Kallick (2000) to mean distinct ways of thinking that promote and express intelligent problem solving strategies. More recently, the phrase *disciplinary habits of mind* has been used to identify those dispositions and ways of thinking characterized by a professional practitioner in a given discipline (Gurung, 2009). By articulating these disciplinary habits of mind, post-secondary educators can identify signature pedagogies for helping students develop those habits. Such an approach can sometimes lead to dramatic curricular changes. This session will describe how the disciplinary habits of mind that were recently developed for the Integrated Science and Technology program at James Madison University were used to design a year-long sequence of innovative courses during the junior year. Session participants will have the opportunity to review this example and explore opportunities for articulating and incorporating habits of mind into their own curricula.

Literature Review

Numerous reports and assessments have documented a decline in the international competiveness of US students in science, technology, engineering, and mathematics (STEM) disciplines over the last few decades (National Academy of Sciences, 2007). This disturbing trend has spurred a plethora of policy and institutional solutions to the problem, as well as a renewed focus on teaching methodologies in STEM (Handelsman, *et al*., 2004). One such approach that will be explored in this practice session is the use of *habits of mind* as a framework for rethinking the STEM curriculum. *Habits of mind* are defined as those dispositions or ways of thinking displayed by intelligent people in response to problems, dilemmas, and enigmas, the resolutions of which are not immediately apparent (Costa and Kallick, 2000). Costa and Kallick (2000) list 16 of these habits of mind that characterize life-long learners who are intelligent, creative, and integrated problem solvers. Since these are the qualities that we seek in students, particularly scientists and technologists, Costa and Kallick (2009) and others (Allen and Allen, 2003) suggest that these habits of mind be afforded a prominent place in the curriculum. More specifically, Gurung (2009) proposes teaching *disciplinary habits of mind,* which are a discipline-specific set of dispositions or ways of thinking that describe how a professional practitioner in a given field seeks to understand the world. These disciplinary habits of mind become an interpretive lens through which the practitioner views and seeks solutions to complex problems. As students develop and practice these disciplinary habits of mind, they will become better equipped to succeed in rapidly expanding science and technology fields.

Goals and Objectives

This practice session describes a set of disciplinary habits of mind that were recently articulated for the Integrated Science and Technology program at James Madison University. The presenters will describe their experience in implementing these habits through an innovative course sequence on complex, real-world problem solving. Next, participants will facilitate discussion groups to explore how habits of mind might be developed and implemented within their respective programs or disciplines. As a result of this session, participants will be able to:
- Explain the role of "habits of mind" in defining the worldview and approaches to learning and problem solving in a discipline,
- Apply the "habits of mind" lens to define educational outcomes that are commensurate with becoming life-long learners that are equipped to tackle the complex problems of society,
- Identify habits of mind that are important to general learning and specific STEM disciplines,
- Describe examples of how habits of mind have been explicitly addressed in STEM curricula and examples of pedagogical practices that are not conducive to the development of those habits, and
- Discuss opportunities for creating educational outcomes and pedagogies that support development of the distinctive habits of mind in their disciplines.

Description

James Madison University's Department of Integrated Science and Technology (ISAT) offers an innovative program that provides a breadth of knowledge and skills across a variety of strategic sectors including biotechnology, energy, engineering and manufacturing, environment, information and knowledge management, and telecommunications. The ISAT program prepares students to face real-world challenges and embrace global responsibilities through a flexible curriculum in which scientific and technical concepts and tools are taught in the context of important societal issues. The hallmark of the program is a focus on holistic approaches to problem solving that recognize the interrelationship between science, technology, and society.

A recent assessment of the ISAT program showed that many of the implicit learning goals for the program involved ways of problem solving and thinking – habits of mind – that were unique to the original program vision. Because these habits had never been fully articulated, they were not adequately embodied in the learning goals and objectives for the program. Hence, over the course of the 2010-11 academic year, the ISAT faculty developed a list of 10 habits of mind that are distinctive of an ISAT practitioner. These habits of mind focus on flexible thinking that analyzes problems within their broadest context, from diverse perspectives, and with recognition of system interconnectedness. The phrase "problem-centric analysis" was adopted as a conceptual summary of this unique set of disciplinary habits of mind.

In order to explore the implications of the problem-centric habits of mind for ISAT undergraduate curriculum, faculty developed an innovative course sequence that was explicitly designed to give students practice in the problem-centric approach. This 7-credit, 2-semester, course sequence on complex, real-world problem solving was organized around the issue of global water scarcity. Teams of students were assigned case study regions of the world (such as the Nile River or Euphrates River basins) where significant water crises are occurring. During the first semester, students work through a problem-solving framework to thoroughly define the problem, identify stakeholders, gain familiarity with relevant knowledge domains, and describe and evaluate the system dynamics relevant to their case study region. During the second semester, students will develop integrated solutions to the identified problems and test those solutions using system dynamics models. Throughout the course, teams document their progress on a WIKI space that is subject to regular review by peers, by the teaching team (that includes a hydrologist, a historian/social scientist, and a systems modeler), and by an external panel of professionals. To assess the success of this course sequence, various problem solving, teaming, and ethics assessment tools are being used to compare the class to a control group enrolled in the program's traditional junior-level courses.

Discussion

With the pace of discovery in scientific and technological fields, relying solely on content-based educational outcomes can produce graduates that are ill-equipped for future success in these fields. Students must grasp more than content; they must develop the habits of mind that will lead to life-long learning, creative problem solving, and innovative discovery. This practice session will explore approaches to defining and incorporating disciplinary habits of mind into STEM curricula.

References

Allen, W., & Allen, C. (2003). *Habits of Mind: Fostering Access and Excellence in Higher Education.* Transaction Publishers, New Brunswick, NJ.

Costa, A., Kallick, B. (2000). *Discovering and Exploring Habits of Mind*. Association for Supervision and Curriculum Development, Alexandria, VA.

Costa, A., & Kallick, B. (2009). *Habits of Mind Across the Curriculum: Practical and Creative Strategies for Teachers*. Association for Supervision and Curriculum Development, Alexandria, VA.

Handelsman, J., Ebert-May, D., Beichner, R., Bruns, P., Chang, A., DeHaan, R., Gentile, J., Lauffer, S., Stewart, J., Tilghman, S., & Wood, W. (2004). Scientific teaching. *Science*, 304, 521-522.

National Academy of Sciences. (2007). *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future.* The National Academies Press.

Gurung, N & Hayne, A., editors (2009). *Exploring Signature Pedagogies: Approaches to Teaching Discplinary Habits of Mind*. Stylus Publishing, Sterling, VA.

Integrating the Undergraduate Science Curriculum

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Abstract: Twenty-first century science is becoming increasingly interdisciplinary and collaborative in nature. The integrated science curriculum (ISC) at Virginia Tech is guided by the belief that students should learn science the way we practice science: as *creators of new knowledge*, *through interdisciplinary thinking*, and as *members of a professional community*. The ISC pilot program began in the fall of 2011. This revolutionary curriculum spans the first two years of learning. Students involved in the program have been introduced from day one to critical ways of thinking about and conducting basic science. The program is founded upon the belief that a curriculum in which the foundations of physical, mathematical and life sciences are learned in an integrated, active-learning classroom will produce students that are better prepared not only for the traditional disciplinary degree programs but also for new studies in interdisciplinary fields. In addition to meeting disciplinary learning outcomes in biology, chemistry, mathematics, computer science, physics and statistics, ISC scholars will develop skills in teamwork, problem solving, integration, and communication. In this workshop, the curriculum (including the integrated science lab) and pedagogy (based upon the SCALE-UP model) will be introduced, assessment for the first semester will be shared and participants will engage in a set of integrated learning exercises to experience this model firsthand.

Literature Review

As interdisciplinarity has become more common in academia, its proponents often present it, *a priori*, as a curricular good. Limiting the current discussion to the attainment of higher order thinking skills and abilities, existing research tentatively supports this assertion (Lattuca, Voigt, & Fath, 2004; Newell, 1994). That said, scholars still need to address questions related to: (a) the articulation of learning outcomes for interdisciplinary experiences; (b) the identification of theories of learning and pedagogy employed within interdisciplinary experiences; and finally (c) whether or not interdisciplinarity promotes learning, including whether or not gains in student learning can be attributed to the interdisciplinary nature of an experience itself (Lattuca et al., 2004, p. 42-44).

Boix Mansilla and Duraising (2007) contributed one of the few studies focusing on assessment of the educational impact of interdisciplinarity. The result of a grounded study into expert faculty conceptions of quality interdisciplinary work at the undergraduate level, the framework described key features of interdisciplinary understanding. The authors defined interdisciplinary understanding as "the capacity to integrate knowledge and modes of thinking in two or more disciplines or established areas of expertise to produce a cognitive advancement…that would have been impossible or unlikely through single disciplinary means" (p. 219). This cognitive advancement could be demonstrated through assignments that required students to explain a complex phenomenon, problem-solve or create something new based upon the acquisition and integration of knowledge from different disciplinary sources (Boix Mansilla & Duraising, 2007).

The framework focused on three core dimensions: (a) *disciplinary grounding*, the degree to which student work is grounded in carefully selected and adequately employed disciplinary insights; (b) *integration*, the degree to which disciplinary insights are clearly integrated so as to advance student understanding; and (c) *critical awareness*, the degree to which the work exhibits a clear sense of purpose, reflectiveness, and self-critique (Boix Mansilla & Duraising, 2007). The final stage moves us beyond integration; it represents the attainment of a level of self-consciousness about the knowledge construction process. The interdisciplinary understanding framework provides a useful mechanism by which we can begin to parse out evidence of specific changes in students' thinking about the nature of scientific knowledge and inquiry.

Goals and Objectives for the Practice Session

Upon completion of this practice session, participants should be able to:
1. Articulate both discipline-specific and broader learning outcomes for an integrated undergraduate curriculum,
2. Design active learning strategies to help students achieve some of the broader outcomes (problem solving, teamwork and communication skills), and
3. Create a case study or problem-based integrated exercise.

Practice to be Modeled

The Integrated Science Course (ISC) is a four-semester sequence of lectures, exercises and laboratories that presents the fundamental ideas of physics, chemistry, biology and mathematical sciences in a unique, interdisciplinary setting emphasizing the unity of these sciences. Through the course, students will learn how the mathematical, physical and life sciences inform each other, and how together they provide satisfying answers to such big questions as: What is life? What is matter? What is energy? What is motion? What is information? The material will be presented in an active-learning environment, emphasizing team-oriented problem solving. Successful completion of the full course (32 credit hours total) will provide a solid foundation for any major in science.

The emphasis of the first semester is "motion". How do physical objects move through space? How do biological populations grow and contract in time? How fast does a chemical reaction proceed? To address these questions, we must learn the basic concepts of differential calculus, the mathematical language of change. We must also deal with some fundamental questions about the atomic and molecular constituents of matter and chemical change, and with some basic biological principles of birth, death, competition, and predation.

Discussion

Science in the 21st Century will be increasingly interdisciplinary, and the next generation of scientists must be trained in interdisciplinary thinking and collaborative problem solving from the first day of their university education. The physical, mathematical and life sciences must be taught as a unified, self-reinforcing fabric of scientific thinking. As the boundaries fall, the interplay of different perspectives on the nature of matter, energy and life will enrich and empower the scientific discoveries of the next 50 years. We will explain a vision of how to accomplish this new style of undergraduate science education and involve participants in a creative, brain-storming session to see how it might work in practice.

A critical learning tool in science involves an opportunity to experience excitement in the laboratory, however, disciplinary experiences in science laboratories have evolved to align with simple 3-hour exercises that demand completion prior to the next laboratory session. It is clear that careers in science do not operate in this fashion, and students much learn to discover in an interdisciplinary, teamed fashion, with problems that are multifaceted. The integrated science laboratory component of the ISC is designed around three-member teams of students tackling cutting edge, real-world, questions in science. The laboratory experience is designed around safe working practices, mathematics and statistics integration, awareness of laboratory tools and their function, and real world scientific modules. The first semester ISL consists of three modules devoted to drug and nucleic acid delivery to human cells in a cell culture environment, chemical synthesis of cationic vectors for binding nucleic acids, solar energy and photosynthesis, and fundamentals of physics using gaming tools that capture students' attentions. Writing and oral communication in concert with teams of students are the cornerstone of the laboratory experience.

References

Boix Mansilla, V. & Duraising, E. D. (2007) Targeted assessment of students' interdisciplinary work: an Empirically grounded framework proposed. *The Journal of Higher Education, 78*, 215-237.
Lattuca, L. R., Voight, L. J., & Fath, K. Q. (2004) Does Interdisciplinarity Promote Learning? Theoretical Support and Researchable Questions in *The Review of Higher Education* (Vol. 28, No. 1, pp. 23-48). The Johns Hopkins University Press.
Newell, W. H. (1994). Designing interdisciplinary courses. In J. T. Klein & W. G. Doty (Eds.), Interdisciplinary studies today. New Directions for Teaching and Learning (Vol. 58, pp. 35–51). San Francisco: Jossey-Bass.

Intentionality and Effectiveness Within Short-Term Study Abroad Programs

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Abstract: Since the first formal study abroad program at the University of Delaware in the 1920's, study abroad opportunities have varied from full year language experiences to more short-term opportunities. Today, more and more study abroad opportunities are seen as short-term experiences of less than eight weeks and this is due to various factors involving both students and faculty. The challenge is that these types of experiences are not viewed as credible, as the study abroad academy argues that short-term programs do not provide the level engagement and exposure of the students, as would a longer-term experience. This presentation examines the efforts of the "Learning About Diversity and Social Justice: The European perspective" program that has taken place each summer since 2008 at Virginia Tech. We will examine how this particular experience highlights the premise that one can develop and implement a short-term program that can be just as effective as a longer-term program. We will showcase the different components used through this approach, and how and how they can transform the experience. Our hope is that this practice can become a tool for future program leaders in the development of their short-term programs.

Literature Review

The most recent Open Doors report by the Institute for International Education (IIE) indicated that 270,604 U.S. students were participating in some type of study abroad opportunity during the 2009/2010 academic year. Most of these students were seeking opportunities that were short-term in nature as well as varied in terms of their location. In the 2009/2010 academic year, short-term programs accounted for 56.6% of all programs. This increase in short-term programs poses a huge problem because the traditionalists in the field argue that such programs are not as effective or as impactful as yearlong programs (Goodwin & Nacht, 1988). The argument is that students need time to immerse themselves in a particular culture. Today's student faces a different environment in terms of the time to degree pressures, costs and their availability. Often times, short-term programs are the only opportunities that are available for students seeking an international experience.

While there is some research on the long-term impact of study abroad on students (Carlson, Burn, Useen, Yachimowicz, 1990; McKeown, 2009), there is not much on how the individual educational components involved with the study abroad program help to influence the impact. All study program programs can be categorized into three or four models (Engle and Engle, 2003). Travel for the sake of travel can be life changing (Byram & Feng, 2006), but we can impact the nature and understanding of that travel through different components.

Goals and Objectives for the Practice Session

The goal of this session is to highlight the ways that a short-term program can be as effective as a longer-term program. Using the "Learning About Diversity" program, participants will be engaged in a discussion of the role and importance on intentionality in helping to structure and shape a study abroad program. Participants will be engaged in looking at the components that help to transform the experience, and how these components can be used to their potential. In addition, participants will be able to examine some of the impact first-hand by reviewing the efforts of the study abroad participants. The ultimate goal is that these tools can be used to further expand the willingness of faculty and others as they explore and develop short-term abroad opportunities.

Description of Practice to be modeled

Since the inception of the "Learning About Diversity and Social Justice: The European Perspective" program in Summer 2008, thirty-two students have participated in this experience. As this program marks its fifth anniversary in Summer 2012, students have traveled hundreds of thousands of miles and have explored such cities as London, Paris, Rome, Madrid, Munich and Prague.

Within the study abroad academy, this particular program would be considered a hybrid between a study tour and a traditional study abroad experience. From the onset of the program, we wanted to create an opportunity that was different not only in terms of the subject matter but also in its approach.

We will look at the components that have been intertwined into this program and how these components have helped to shape the experience. The components include a photo journal, reflection papers, dialogue sessions, current event discussions to the final exam reflection. We will also look at this concept of the classroom not being limited to just four walls and room, but much broader in terms of the experience itself. Our approach is that Europe itself is our classroom and it provides a canvas for the group to grow, learn and transform.

Discussion

We know that the experience of travel can be life changing, but we also understand that this is not enough as we seek to truly understand the impact of the study abroad experiences. Our argument is that one can develop a short-term program experience that can be just as effective as a longer-term opportunity. One of the main facets is the intentionality of the program as well as the critical components of the effort. It is through these varied and intentional components that we can help shape the experience for the student participants. While the components are intentional, they still depend on the participation and engagement of the students. We believe that this approach (i.e. model) can further legitimize the importance of short-term programs as a meaningful experience on the development of students. In addition, that this approach can help to revitalize and enhance existing short-term programs as well as future programs.

References

Bryam, M., & Feng, A. (Eds.). (2006). *Living and studying abroad: research and practice*. Clevedon, UK: Multilingual Matters Ltd.

Carlson, J., Burn, B., Useen, J., Yachimowicz, D. (1990). *Study abroad: the experience of American undergraduates*. Westport, CT: Greenwood Press.

Engle, L. & Engle, J. (2003). Study abroad levels: Toward a classification of program types. *Frontiers Journal*, 9(1), 1-20.

Garraty, J., & Adams, W. (1959). *From Main Street to the Left Bank: students and scholars abroad*. East Lansing, MI: Michigan State University Press.

Goodwin, C. & Nacht, M. (1988). *Abroad & beyond: patterns in American overseas education*. New York: Cambridge University Press.

Hill, D. (Ed.). (1991). *Global education and the study abroad program*. Worthington, OH: Renaissance Publications.

The Institute for International Education (November 14, 2011). 'Study Abroad by U.S. Students Rose in 2009/10 with More Students Going to Less Traditional Destinations'. Press Release. Retrieved 2011-11-21. http://www.iie.org/Who-We-Are/News-and-Events/Press-Center/Press-Releases/2011/2011-11-14-Open-Doors-Study-Abroad.

Jackson, J. (2010). *Intercultural journeys: from study to residence abroad*. Basingbroke, England: Palgrave Macmillan.

Kauffman, N. L., Martin, J. N., Weaver, H. D. & Weaver, J. (1992). *Students abroad, strangers at home: education for a global society*. Yarmouth, ME: Intercultural Press.

McKeown, J. S. (2009). *The first time effect: the impact of study abroad on college intellectual development*. Albany, NY: SUNY Press.

Let's Play! Implementing Simulation Games in Diverse Classroom Settings

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Abstract: Engaging students in the classroom is a daily challenge for instructors. It is often difficult to alter current pedagogies in an effort to create a more engaged, active-learning environment. This presentation examines the literature on simulation-based game pedagogies and will discuss the implementation of such pedagogy to an Educational Psychology class. Participants will engage in a guided discussion assessing the diverse classrooms that could use the pedagogy, then focus on the specific topics they might use in their own classrooms, as well as the instructional strategies to implement simulation games. Participants will examine syllabi, game setup information, rubrics, and assessment techniques.

Literature Review

Recent research has demonstrated that students must become actively engaged in the learning process in order for them to retain the information they are learning (Barkley, 2005; Edgerton, 1997; Pascarella &Terenzini, 1991; Shulman, 2002). One way to implement active learning in the classroom is through the use of collaborative learning. Barkley (2005) examined key areas where collaborative learning benefits the learning process, including building of knowledge (Edgerton, 1997; Pascarella & Terenzini, 1991; Shulman, 2002), interpersonal skills, and ability to understand (Bruffee, 1999).

Each of these areas comes into play in my class during the game simulation. Simulation "weaves substance-specific information into real-life problems in meaningful ways that students can understand" (Hertel & Millis, 2002, p.1). Additionally, simulation benefits student and teachers by stimulating motivation. It is a form of active, engaged learning, which shifts much of the classroom responsibility to the students, allowing them to take leadership roles in the classroom. Such roles can be highly motivating (Hertel & Millis, 2002).

Goals and Objectives for the Practice Session

Participants in this session will review simulation game pedagogies and the benefits of these approaches in the classroom. We will then evaluate samples of student work from an undergraduate course, Educational Psychology, and consider how participants could utilize such pedagogies in their courses. Further, the group will learn methods for creating simulation games for their own classrooms and will begin development of a game for their own classroom.

Upon completion of the session, participants will be able to:
1. Understand the simulation game pedagogy, including its risks and benefits,
2. Identify classroom topics they teach that lend themselves to the simulation game approach, and
3. Develop strategies to implement the simulation game approach to their own classroom.

Description of the Practice to be Modeled

I will model the creation of simulation games for my Educational Psychology class. I will first show samples of the games I developed, including instructor and student materials, as well as video clips from actual classroom sessions. Next, I will walk participants through game creation for the subjects they teach. First, we will brainstorm, or create a list of potential ideas for their games. Then, using one of their game ideas, we will create lists of game-related topics (course material that will be directly related to the games and that must be understood in order to play the games well). Next, we will brainstorm potential "settings" for the game and "roles" that their students might play; I will point out that these need to be realistic, because the games are meant to simulate real-life experiences. Then I will walk participants through the process of designing the game, gathering source material, and instructing students on how to engage with the games. Finally, I will present grading rubrics and discuss overall pros and cons of the simulation game approach.

References

Barkley, E. F., Cross, K. P., & Major, C. H. (2005). Collaborative *learning techniques: A handbook for college faculty*. San Francisco: Jossey-Bass.

Bruffee, K. (1999). *Collaborative learning: Higher education, interdependence, and the authority of knowledge*. Baltimore, MD: The John's Hopkins University Press.

Edgerton, R. (1997). *Higher education white paper*. Pew Charitable Trusts.

Hertel, J. P. & Millis, B. J. (2002). *Using simulations to promote learning in higher education: An introduction*. Sterling, VA: Stylus Publishing.

Pascarella, E. T. & Terenzini, P.T. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco: Jossy-Bass.

Sculman, L.S . (2002). Making differences: A table of learning. *Change* (34), 36-44.

Moving From "You and Me" to "We": Blurring the Lines Between Professor and Student to Create a Truly Collaborative Classroom Experience

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Gravity Goldberg, *Education*
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Abstract: Moving from "you and me" to "we" is both a philosophical stance towards teaching and learning as well as a thoughtful and intentional shift in the classroom. Participants in this session will redefine the term "collaborative" in the higher education classroom from a multi-disciplinary perspective. They will brainstorm boundaries that are created between professor and student and identify effective techniques to remove those boundaries. The session will challenge participants to create an inclusive classroom by considering not only the physical environment, but also the choice of language and projects used within that physical environment. By the conclusion of the session, participants will be able to describe a number of ways higher education pedagogy can incorporate everyone in the classroom as learners, including the professor. By moving towards a "we" classroom, we offer students a seat at our table, an opportunity to construct their own knowledge, and a chance to participate with us in the complicated work of our respective disciplines. The benefits include active and engaging learning experiences that help the students and the professors construct new knowledge to offer their fields.

Literature Review

If we know that teaching is more than telling (Vygotsky, 1978) and that students are not empty vessels to be filled, then we must stop using transmission models of teaching (Rogoff, 1995). Instead, we must offer participatory approaches to our students where they are constructing their own knowledge by using texts, experiences, and multimodal tools to create knowledge, not simply download someone else's (Alvermann, 2002; Rogoff, 1995). The consequences of a transmission model lead to a domesticating education, where students are prepared to be docile workers and not critical thinking contributors (Freire & Shor, 1986). Pink (2010) claims "Routine, not-so-interesting jobs require direction; non-routine, more interesting work depends on self-direction" (p. 22). What are we preparing our students for? Most of our need to direct our students' thinking, learning, and even their physical bodies stems from the "othering" (Heath, 1983) that takes place in most university classroom settings. To "other" is a form of separating ourselves from those we wish to reach, to create distance from those we actually want to bring near. By attempting to stop "othering" our students, we break the cycle of thinking in dichotomies (us and them, learned and learner, right and wrong). As we bring students into our "disciplinary club," we are not lowering our own esteem but raising theirs. By calling on students to become members of our field, by pursing answers to some of our most urgent challenges and questions, we move away from a domesticating educational experience to an empowering one (Finn, 1999). In our classrooms, we should be seeking ways to offer our students a seat at *our* table and to participate *with* us in the complicated work of our respective fields. As professors in any discipline, it is vital that we collaborate with students, stop "othering" them, and blur the lines between learner and learned.

Goals and Objectives

Participants in this session will redefine the term "collaborative" in the higher education classroom from a multi-disciplinary perspective. They will brainstorm boundaries that are created between professor and student. Following, they will evaluate how educators can begin to break these walls and weaken the sentiment of "us" (the professors) and "them" (the students). This design of an inclusive classroom will detail three themes: the physical classroom environment, language used within the classroom, and class projects. Participants will be challenged to think of themselves as active learners within the presentation. By the conclusion of the session, participants will be able to describe a number of ways higher education pedagogy can incorporate everyone in the classroom as learners, especially the professor.

Description of Practice

We will briefly describe models of classroom collaboration. Participants will list how the professor is and is not included in a traditional collaborative learning environment. Then we will brainstorm how to re-evaluate our definition of collaboration, this time including the professor as an active learner. First, pictures and videos of classroom spaces from different disciplinary areas will be viewed and we will quickly re-arrange our presentation space. We will then analyze how a classroom's environment can be altered to physically include all members of the class in the learning community. Following, we will model how a professor, or presenter in this case, can change his or her language to create a "we" classroom. Lastly, we will all participate in a brief project together that supports a sense of unity or "we." At the conclusion, projects and assignments generated by undergraduate and graduate students across different disciplines will be shared with a brief discussion about how this could be taken up in any classroom. After engaging in three different "we" classroom experiences, participants will be asked how they can challenge themselves, or rather "we" can challenge "ourselves," to think more about being a part of the learning, truly being a "we."

Discussion

Moving from "you and me" to "we" is both a philosophical stance towards teaching and learning as well as a thoughtful and intentional shift in the classroom. Changing our language practices, our physical setting, and our class projects requires attention to our desire not to "other" our students, to bring them near and to invite them into our club. We must assume they will meet our expectations, we must trust they can contribute, and we must support them as they support one another (and even us at times). Rogoff, Goodman Turkanis, and Bartlett (2001) have shown us how learning happens in practice with community members. Dewey (1938) taught us that we learn from experience not solely from listening or watching. By moving towards a "we" classroom we can offer every person who walks through the classroom door an opportunity to participate and experience *our* discipline at *our* table. The benefits include active and engaging learning experiences that help the students and the professors construct new knowledge to offer their fields.

References

Alvermann, D. E. (2002). Effective literacy instruction for adolescents. *Journal of Literacy Research*, 34 (2), 189-208.

Brice-Heath, S. (1983). *Ways with words*. New York, NY: Cambridge University Press.

Dewey, J. (1938*). Experience and education*. Indianapolis, Indiana: Kappa Delta Phi.

Finn, P. J. (1999). *Literacy with an attitude.* Albany, NY: State University of New York Press.

Freire, P. & Shor, I. (1986). *A pedagogy for liberation: Dialogues on transforming education.* Westport, CT: Bergin & Garvey Publishers.

Pink, D. (2010). *Drive: The surprising truth of what motivates us.* New York, NY: Penguin.

Rogoff, B. (1995). Observing sociocultural activity on three planes: participatory appropriation, guided participation, and apprenticeship. In Wertsch, J. V., del Río, Pablo, A. Alvarez (Eds.) *Sociocultural studies of mind* (pp. 139-164). New York, NY: Cambridge University Press.

Rogoff, B., Goodman Turkanis, C. &, Bartlett, L. (2001). *Learning together: Children and adults in a school community*. New York, NY: Oxford University Press.

Vygotsky, L.S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Moving Ideas, Moving Emotions, Moving Bodies: Choreographing the Classroom Experience

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Abstract: What does it mean to be "physically present" in a classroom that is becoming increasingly mediatized? Is there room in the conventional classroom for the bodily-kinesthetic experience as a valid learning modality particularly for students who glean the world through monitors and are saturated with the notion that "seeing is believing." Can choreographed human movement contribute to creating a more vital sense of a learning community between students, their professors and the subject they are studying? Are there ways by which we can embody our subject areas in order to engage students intellectually, emotionally and creatively with the teaching and learning environment in our classrooms? I believe that we can, and I believe that inviting Dance Studies into the conversation can help us to re-imagine how a kinesthetic implementation of our course objectives - no matter the subject and no matter the classroom space - can help us create a learning environment in which "doing is engagement."

Most teaching strategies favor auditory and visual modalities over those of the kinesthetic. No doubt, for many, there is a comfortability and strong familiarity with pedagogies that favor these modalities. Often, the kinesthetic is dismissed as marginal, too time consuming, interesting but irrelevant. In some cases, the terminology reflects a pejorative attitude that assumes that those who "need" the kinesthetic can somehow be viewed as – "less than," "not intellectual enough," or "suffering from a case of hyperactivity."

All of these misperceptions dismiss the significance and role of the body in the learning potential of students in the conventional classroom. They reflect more a lack imagination than an accurate description of reality. Put simply, the body is more a verb than a noun that cries for action, for doing something, for creative engagement with ideas, with emotions and with others. This practice session will put these ideas to the test.

Learning Goals and Objectives

The intent of this session is to examine how to construct movement experiences in our classroom that relate to our courses. Many professors have developed reliable, interesting and creative ways in which to present materials and engage students by using visual and auditory methodologies. The aim here is to expand that repertoire by thinking scenographically about our classroom, the students who occupy that space and the specific learning goals and objectives that we have for different units that we teach in our courses.
1. To engage the participants in thinking about their classrooms and their course objectives scenographically,
2. To examine and apply selected concepts from Laban's Effort/Shape theory regarding movement qualities,
3. To examine and apply selected concepts from Viewpoints as developed by Anne Bogart and Tina Landau regarding classroom architectural choices and spatial relationships, and
4. To interrogate how selected educational theorists, like Parker Palmer, describe how they think about space and learning and then create and construct "movement studies" that help us to adapt our course objectives to this kinesthetic way of knowing.

Description of the Practice

This session is designed so that participants might "ping-pong" between theory construction and practice through guided movement studies related to specific pedagogical goals. The participants will think, talk, do and reflect together. Rather than presenting a "bag of tricks," it is my intent to create an environment in which we together can bring an increased sense of awareness regarding the creative potential of movement which can be applied to our approach with our students in our home environments. The bottom line – to help the participants to see themselves as "choreographers" for their own courses

This workshop will help participants to think scenographically about the space in which they teach. In addition, they will examine the role of the human body as a medium for movement as "created ways of knowing." Based on the work of Parker Palmer and some of the ideas in Viewpoints developed by Anne Bogart and Tina Landau, as well the Effort/Shape theory work of Rudolph Laban, the participants will construct "movement studies" that can be applied

to their courses and the classroom spaces in which they teach. This workshop is intended for professors iu any field of study. No previous movement experience is necessary.

Discussion

The assumption is that each of us are fundamentally dancers; that is, we are engaged with our disciplines and subfields in ways that are not only intellectually stimulating but that we often describe our relationship to these areas in palpably sensual and kinesthetic terms. We not only think about our fields of study, we inhabit them. We live through them. We are passionate about them. What we do has significance, has meaning. It is not superfluous. And, neither are our bodies.

As professors and teachers, I suggest that we can think about the daily classroom experience as a "moment of engagement" with students and subject matter and that we can serve as "choreographers" who construct space that is intellectual, physical and, at times, emotional in ways that invite students into the "space" that we see or know as historians, or scientists, or psychologists, or humanities provocateurs, or whatever.

References

Blumenfeld-Jones, D (2009). Bodily-kinesthetic intelligence and dance education: Critique, revision, and potentials for the democratic idea. *The Journal of Aesthetic Education*, Vol. 43. No. 1, Spring 2009, pp. 59-76.

Bullen, V. (2009). Developing a mind-body connection in teaching dance history. Dance Dialogues: Conversations Across Cultures, *Artforms and Practices*, 2009.

Gage, Richard. (1975). *Excuse Me, You're Cramping My Style: Kinesthetics for the Classroom*. English Journal, 1995.

Laban, R. (1975). *The Mastering of Movement*. Boston: Plays, Inc., 1975.

McPherson, E. (2006). Teaching across the curriculum: Explorations in teaching world studies through dance and other disciplines. *Journal of Dance Education*, Vol.6 No 2, 2006.

Neumann, A. (2006). Professing passion: Emotion in the scholarship of professors at research universities. *American Educational Research Journal*, Fall 2006, Vol. 43. No. 3.

Roth, Wolff-Michael. Gestures: Their role in teaching and learning. *Review of Educational Research*, Fall 2001, Vol.71, No. 3.

Solso, R. & Raynis, S. (1982). Transfer of prototypes based on visual, tactual, and kinesthetic exemplars. *American Journal of Psychology*, Spring 1982.

Thorton, S. (1971). *Laban's Theory of Movement: A New Perspective*. Boston: Plays, Inc., 1971.

One Campus, Many Perspectives: Uniting and Engaging Student Leaders Through Powerful Conversation

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Abstract: The World Cafe is an educational strategy that facilitates collaboration and shared meaning-making through interactive dialogue. The use of powerful questions focuses inquiry, surfaces assumptions and biases, and opens up new possibilities for ideas and meaning (Brown et al., 2005). This session will describing how World Cafe strategies were used to enhance learning within a multi-disciplinary, co-curricular freshman leadership conference. The presenters will share lessons learned and engage participants in an interactive dialogue that a) demonstrates the practice, and b) invites educators to co-create ideas and insights for applying the World Cafe strategies in their own classrooms and learning communities.

Literature Review

Current research in higher education supports the belief that learning leadership involves the co-construction of knowledge through social interaction. Barge & Fairhurst (2008) describes leadership as, "a lived and experienced social activity in which persons-in-conversation, action, meaning, and context are dynamically interrelated" (2008, p. 228). Leaders co-create identities, relationships, communities, and cultures through a process of communication (2008). In their Grounded Theory of Leadership Identity Development, Komives et al. (2005) suggest that, "students' changing view of themselves with others influenced their broadening view of leadership and their personal definition of leadership" (p. 605). Students' constructions of leadership (i.e., what leadership is and who can be a leader) are influenced by their changing view of self with others (2005). Engaging in dialogue with students with varying leadership perspective facilitates this process and ultimately deepens their own leadership identity. According to theories of development, as students interact with people who have differing points of view, they develop advanced ways of knowing, interpersonal skills, as well as the opportunity to reflect on their own beliefs and identity (intrapersonal skills). These three foundations lead to what Baxter-Magolda calls "self-authorship", a key ingredient for effective citizenship (2004). Additionally, these interactions with different perspectives enable students to begin the process of synergistic knowledge development (Mu & Gnyawali, 2003); as they integrate new perspectives into their own. The World Cafe is an educational strategy that facilitates collaboration and shared meaning-making through interactive dialogue. The use of powerful questions focuses inquiry, surfaces assumptions and biases, and opens up new possibilities for ideas and meaning (Brown et al., 2005).

Goals and Objectives of Practice

In this practice session, the presenters will describe the World Cafe method, using the Stepping Into Leadership Conference as a case study of the practice. Presenters will demonstrate the use of powerful questioning and engage participants in interactive dialogue as they consider how to utilize the strategies in their own classroom, learning community, or educational context.

Description of the Practice

This session will present a case example featuring the Stepping Into Leadership Conference, a freshman leadership training event hosted by the Virginia Tech Corps of Cadets, School of Business, Residential Leadership Community, and Student Activities Leadership Tech Program. Each of these programs offers a leadership minor or certificate that links coursework and leadership training experiences in varying contexts. The Stepping Into Leadership Conference is a half-day event designed to help students develop and enhance the skills necessary to be an effective leader throughout their time in college and beyond. This partnership between academic and student affairs student leadership communities is a unique opportunity to "merge resources and expertise from separate entities to address the learning needs of students" (Nesheim et al., 2007). While each program is unique in its approach, they share a common goal of developing student leaders who are able to take on the professional, civic, and personal challenges within their workplace and communities. Part of the Virginia Tech's mission is to "challenge students, including undergraduates, to pursue the discovery of new knowledge" (Board of Visitors, 2006). While students certainly gain

valuable interaction within their communities, the Stepping Into Leadership Conference is an experience designed to provide students with an opportunity to engage with other leaders among these communities, recognizing the larger community of leadership-learners that exists on the Virginia Tech campus.

The World Cafe exercise was an opportunity for leaders to engage in communication at two levels: between other conference attendees (first-year students) and with their table hosts (affiliated upperclassmen). Students captured textual representations of their conversations on flip-chart paper that covered each table. The World Cafe was conducted as a two-hour final session at the conference. Students participated in three, 20-minute rounds of discussion led by a table host. Round one focused discussion on students' key points of learning; round two focused discussion on the meaning students made from their interactions with the content and the experience; and, round three focused on reflection and application of students' learning. A final, facilitator-led round of discussion encouraged students to synthesize and reflect on themes that emerged from the conversations. Feedback from participants indicated that they value the opportunity to get to know and learn from students in other disciplines/leadership programs on campus.

After the case example, the presenters will conduct a mini-world cafe session to allow participants from varying backgrounds and educational communities to engage in interactive, constructive dialogue. The topic will be the integration of the world cafe strategies in their own teaching and learning practices.

Discussion

Through the case example, presenters will share themes and conclusions that emerged from the World Cafe experience and feedback, providing other educators and practitioners with valuable insight and implications into the value of shared leadership experiences on student leader development. However, the World Cafe can be used as a learning strategy in many contexts, particularly those that call for interdisciplinary dialogue and problem solving.

References

Barge, J. K., & Farhurst, G. T. (2008). Living leadership: A systemic constructionist approach. *Leadership, 4*, 227-251. Doi: 10.1177/1742715008092360

Baxter Magolda, M. B. (2004). Self-authorship as the common goal of 21st century education. In M. B. Baxter Magolda and P. M. King (Eds.), *Learning partnerships: Theory and models of practice to educate for self authorship* (pp. 1-35). Sterling, VA: Stylus.

Board of Visitors. (2006). Mission and Vision Statements of the University. Retrieved from http://www.president.vt.edu/mission_vision/mission.html

Brown, J., Isaacs, D., & Associates (2005). The world cafe: Shaping our futures through conversations that matter. San Francisco: Berrett-Koehler Publishers.

Komives, S. R., Owen, J. E., Longerbeam, S. D., Mainella, F. C., & Osteen, L. (2005). Developing a leadership identity: A Grounded theory. *Journal of College Student Development, 46*(4), 593-611. DOI: 10.1353/csd.2005.0061

Mu, Shaohua (Carolyn), & Gnyawali, D. R. (2003). Developing synergistic knowledge in student groups. The Journal of Higher Education, (74)6, pp 689-711.

Nesheim, B. E., Guentzel, M. J., Kellogg, A. H., & McDonald, W. M. (2007). Outcomes for Student of Student Affairs-Academic Affairs Partnership Programs. *Journal of College Student Development, 48*(4), 435-454. DOI: 10.1353/csd.2007.0041

Online Pedagogical Strategies for Meeting Triple-A Requisites: Accreditation, Accessibility, and Assessment

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Abstract: The purpose of this presentation is to discuss the topic of teaching online courses through the lenses of accreditation, accessibility, and assessment. Two of the presenters have taught research methods online for different universities. They use a wide variety of Web 2.0 platforms to provide asynchronous and synchronous learning experiences. Seeking an intellectual exchange of ideas, the presenters will provide an overview of current research and ask participants to contribute experiences, perceptions, expectations, and best practices with the group. The presentation will include, but not be limited to, the following areas that will serve as topical frameworks for discussion: Accreditation / Accessibility / Assessment.

Accreditation

The first discussion area will be related to participant reactions and responses to real and perceived quality issues with online teaching. Findings from studies of empirical research related to online quality and accreditation will be presented using two accreditation lenses: professional accreditation (discipline-specific) and regional accreditation (institution-specific). Professional accreditation practices elicit several discipline-specific issues (Perreault, Waldman, Alexander & Zhao, 2009) and regional accreditation practices have specific standards to incorporate online learning.

Accessibility

An online learning platform that is engaging, intuitive, user-friendly, and accessible is of primary concern, particularly for asynchronous learning experiences (Dziuban, Moskal, Brohpy, & Shea, 2007). Few instructors use hands-on performances and interactive activities in online teaching pedagogical practices although students cite these activities as highly important components of their online learning (Bonk, 2002). Thus, we assert the issue of accessibility must include a conversation of new pedagogical practices. In other words, faculty must be willing to push themselves beyond their current comfort zones.

Assessment

In addition to quality assurances and accessibility concerns, many faculty are faced with finding new and innovative ways to assess student performance, learning, and professionalism in an online environment. Creating environments of reflexivity are important for assessing professionalism (Ostorga, 2006; Reushle & Mitchell, 2009). Some scholars have suggested peer recognition of learning as a way to leverage online communities in assessment through the use of digital portfolios (Schmidt, Geith, Hakley & Thierstien, 2009). Constructivist assessment practices are particularly useful in online learning platforms (Partlow & Gibbs, 2003 ; Bronack, Sanders, Cheney, Riedl, Tashner & Matzen, 2008).

Goals and Objectives

- Participants and presenters will share knowledge and experiences regarding accreditation processes and issues for online programs resulting in a working understanding of current issues in the area of online program accreditation.
- Participants and presenters will share enriching aspects of online instruction resulting in shared development of creative online instructional designs.
- Participants will develop an enriched portfolio of assessment strategies for online courses through sharing and assimilation of non-traditional online assessment formats.

Discussion

The essence of this presentation is to provide attendees with specific examples of accreditation issues for online programs and possible solutions. Also, attendees will share and discuss specific styles and strategies for engaging

students in an online environment and how to blend accessibility with creativity. Finally, discussions regarding assessment of online work will aid participants' scope and understanding of ways to effectively assess student work in online environments. Both participants and presenters will benefit from sharing and demonstrating effective and creative ways to enhance online education from accreditation to student engagement and assessment.

References

Bonk, C. (2002). Online training in an online world. *USDLA Journal*, 16(3).

Bronack, S., et al. (2008). Presence pedagogy: Teaching and learning in a 3D virtual immersion world. *International Journal of Teaching and Learning in Higher Education*, 20(1) 59-69.

Dziuban, C., et al (2007). Student satisfaction with asynchronous learning. *Journal of Asynchronous Learning Networks*, 11(1) 87-95.

Ostorga, Alcione N.(2006). Developing teachers who are reflective practitioners: A complex process. *Issues In Teacher Education*, 15(2) 5-20.

Partlow, K. & Gibbs, W. (2003) Indicators of constructivist principles in internet-based courses. *Journal of Computing in Higher Education*, 14(2) 68-97.

Perreault, H., et al (2009). Comparing AACSB faculty and student online learning experiences: Changes between 2000 and 2006. *Journal of Educators Online*, 6(1).

Reushle, S. & Mitchell, M. (2009). Sharing the journey of facilitator and learner: Online pedagogy in practice. *Journal of Learning Design*, 3(1) 11-20.

Schmidt, J. et al. (2009). Peer-to-peer recognition of learning in open education. *International Review of Research in Open and Distance Learning*, 10(5).

Peer Learning in Architecture + Design Education

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Abstract: Students enter the School of Architecture + Design at Virginia Tech having progressed through high school with a learning paradigm that preferences independent learning. The process is most often completed by the student and assessed by the teacher, privately and individually. The learning paradigm for architecture and design students in the Foundation Program involves a collaborative learning process that encourages students to learn from their colleagues as much or more than from the faculty. Peer learning is the situation in which students learn from and with each other in formal and informal ways. "Peer learning is not a single, undifferentiated educational strategy." (Boud, 2001) This presentation will examine various modes of peer learning embedded in architecture and design education at Virginia Tech. The primary learning environment, the design lab, involves collaborative learning where students work in small groups toward common outcomes, and they share in the responsibility for each other's learning. The shared learning gives students an opportunity to engage in critical discussion where they are confronted with different interpretations of a given situation. The students must go beyond mere statements of opinion by identifying criteria for their proposals and judgments of each other's work. Through critical examination of their work vis-à-vis discussion of the clarity of idea, assertion of interest, visible ordering system(s), hierarchy, etc. they develop a better understanding of a problem, associated issues, and multiple potential outcomes. However, peer learning extends beyond the duration of the design lab and often involves peers outside of each one's lab. Peer learning is integral to architecture and design education as it establishes a way of learning that it is paramount to successful professional practice.

The School of Architecture + Design has a legacy that embraces peer learning in structured ways and on an ad-hoc basis, one-to-one and in small groups. It is not part of the contemporary pragmatic interest that is a result of reduced funding in higher education. Peer learning is part and parcel to life long learning.

The Foundation Program of the School of Architecture + Design is based upon the idea that students learn by doing, specifically making things. Each student "has to see on his own behalf and in his own way the relations between means and methods employed and results achieved. Nobody else can see for him, and he can't see by being' told', although the right kind of telling may guide his seeing and thus help him see what he needs to see." (Dewey, 1974) This creative activity involves a disciplined, comprehensive approach to observing, thinking, interpreting, reflecting and iterative making.

The design lab is multi-disciplinary and comprised of twenty-four students in their first year of study in architecture, landscape architecture, interior design and industrial design. Students engage in a series of exercises and assignments that build essential skills, both thinking and making, through exploration of various materials and media. The outcomes include hand drawings, sketches, diagrams, and 3-D models, as well as, digital compositions and modeling. Initially a surprise to the students, none of the exercises and assignments is graded during the semester but students do receive a grade at the conclusion of the semester. However, students learn self and peer assessment of their work through critical discussion from the outset. Critical discussion involves critiquing and being critiqued by faculty and peers as students develop investigative, collaborative and integrative skills through extended engagement with elements of design. This strategy values iterative production that aims for comprehensive improvement over singular success. Students see that self and peer evaluation has value far beyond a grade. Learner-centered approach to assessment privileges iterative assignments and collaboration.

Goals and Objectives for Practice Session

Self-assessment of one's own work is one of several learning outcomes gained from peer learning. In the structured environment of the design lab the teacher poses an open ended but focused task for the students to work together to make propositions that they evaluate through critical discussion. "The teacher is more of a facilitator, negotiating the learning and evaluation with learners and handing over more control" to the students. (Boud, 2001)

Attendees will be presented assignment #1, and student produced outcomes followed by assignment #2 and its outcomes. The peer learning that occurred between #1 and #2 will be presented as captured on video through the of students' reflections.

Another learning outcome includes what students gain through the process of making a formulation of their idea and strategy for their proposal to others. Once a tentative statement is made in relation to a drawing or model, critical inquiry ensues and further explanation follows. The formulation gains strength. In this way students gain respect for the varied experiences and knowledge of their peers. Students come to know methods that allow them to take responsibility for their own learning.

Description of Practice to be Modeled

David Boud sums up peer learning in this way. "Critical thinking, problem solving, sense-making and personal transformation, the social construction of knowledge – exploration, discussion, debate, criticism of ideas are the stuff of collaborative learning. Bruffe (1999) names this approach 'constructive conversation' – an educative experience in which students learn by constructing knowledge as they talk together and reach a consensus or dissent. Dissent, questioning each other's views within a group, is a necessary part of learning."

Each design lab session occurs over the duration of four hours in which the teacher engages the students in multiple learning situations. Students may work individually, in pairs, in teams of four, or as a group of twenty-four. The teacher engages the students in the various groupings to address the assignment at the outset, and the work in-progress or at its completion. At the start of the semester the teacher focuses on developing the students ability to observe everyday objects and the environment through the mind of an architect or designer, which is defined through discussion of drawing exercises. Initially critical discussions occur with the entire group of twenty-four directly in the design lab amidst the students desks or around a large table where everyone has a chair. It is important to note that everyone is facing each other, which "shows respect for students' voices and experiences." (Brookfield and Preskill, 2005)

Discussion

While students learn to work with others through peer learning, much of it occurs on one-to-one basis outside of the design lab class time but in the same environment. Design lab is an open classroom and often students at different stages of their education sit adjacent to one another's lab. Students observe the work of others and may be drawn to conversation through shared interest in a material, way of drawing, method of model making or assertion of interest in an idea. Ad-hoc peer learning is nurtured by the physical place. The student's desk is theirs 24/7, 365 days a year.

Peer learning is not a substitute for teaching. The sequencing of formal peer learning with presentation of new knowledge by the teacher is key for students to come to know when to have confidence in their peers knowledge and when to seek out other sources.

Another form of structured activity that is part of architecture and design education and utilizes peer learning is the workshop. Other students, usually upper classmen, introduce students to subjects they had achieved a certain level of mastery. Currently this is often necessary for teaching digital technologies as they develop at a rate faster than faculty can keep up with beyond an elementary level. After the workshop has concluded peers continue to assist students as they transition from competency to mastery.

References

Boud, D., Cohen, R., Sampson, J., editors. (2001). *Peer Learning in Higher Education,* London: Kogan Page Limited.
Brookfield, S. D. & Preskill, S. (2005). *Discussion as a Way of Teaching*, San Francisco: Jossey-Bass Publishers.
Dewey, J. (1974). *John Dewey on Education: Selected Writings*, Chicago: University of Chicago Press.
Gokhale , A. A., Collaborative Learning Enhances Critical Thinking, *Journal of Technology Education* Fall 1995: volume 7, number 1.
Schon, D. A. (1987). *Educating the Reflective Practitioner*, San Francisco: Jossey-Bass Publishers.

Practical Trainings of Students in a Field of Environmental Science: Methodology

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Abstract: This study focuses on conducting practical trainings for Master and Bachelor students in a field of environmental science. Practical trainings play the most important role in educating students and preparing them for their future carrier. Therefore, the main objective of the study is to develop the methodology that can be applied at the University of Life and Environmental Science of Ukraine. The developed methodology is based on group-work of students in which a matrix approach is integrated. This has not been done before at the University. The methodology considers international experience regarding higher education of Master and Bachelor students (i.e., Wageningen University, the Netherlands). The methodology has been applied to Master students. We believe that this methodology generates an arena at which students develop, improve and practice their skills by sharing knowledge, cooperating, negotiating, solving conflicts etc.

Literature Review

Practical trainings of higher education are one of the important aspects that have to be considered seriously at any university. This is because they contribute significantly to future student's carrier (DG Education and Culture, 2005; UNESCO, 2004). The quality of the trainings depends on applied methodology to prepare those trainings. The international experience shows that the group-work of students at higher educational schools (collages, universities) is crucial if we want students to become experts in their scientific fields of interest. Wageningen Univesity, the Netherlands, is an international university that collects many students from around the world (http://www.wur.nl/UK/). Educational programs of the University are very much based on the group-work, where students have opportunities to learn from each other etc. Their experience showed that graduated students are highly educated and they are desirable on a job-arena (http://www.wur.nl/UK/). We have experienced this type of teaching. A few years ago a European Workshop for Master students was held between the National University of Life and Environmental Science of Ukraine and the Wageningen University. A matrix approach was the basis of forming groups of students (Blackman, 2003). The Workshop was conducted in cooperation with non-governmental international organization, Foundation for Environmental Education (FEE) (http://www.blueflag.org/). Since that time a Bachelor Workshop has been carried out on a regular basis between the Ukrainian university and the Wageningen University. Results are rather positive. Students became more active and responsible to educational processes.

In summary, we would like to develop out own methodology for practical trainings in which the group-work takes first place. We also want to adjust a matrix approach to Ukrainian university requirements in order to divide students into groups. This will give possibility to integrate different approaches into one methodology and also to integrate different styles of teaching.

Goals and Methodology

The main objectives of this study are to (a) develop methodology for practical trainings of students-environmentalists at Natl. University of Live and Environmental Science and (b) apply the developed methodology.

Several aspects of teaching were taken into account in order to develop the methodology for practical trainings. These include educational-cognitive aspects (oral, visual, practical, situational and interactive methods), aspects that cover investigation of impacts of different aspects on the environment by students (analysis, synthesis, observation, measurements, comparison, estimations, Battele method and Leopold method), aspects related to predictions (e.g. statistical methods) and aspects related to the use of innovative technologies (modeling, different graphical methods) (Ridei, 2011). In the developed methodology different practical trainings (e.g. workshops) are combined with student work and scientific research conducted by teachers, professors and PhD students. Practical trainings are integrated in Master and Bachelor programs of the National University of Life and Environmental Science of Ukraine. In this study we develop the methodology for students in a field of environmental science.

The principle of the methodology of the trainings lies in dividing students into two major groups, geo-groups (*Geo-,* depends on location) and expert-groups (*E-,* depends on specific expert topic). Expert-groups are formed by a representative from each geo-group. According to the methodology before the practical training starts, its objectives and tasks of students and of teachers are clear defined. The practical has tree main periods. Forming geo-and expert-groups is in the *first period*. Responsibilities between students are divided in this period. Students make plans on how they will proceed given tasks in the *second period*. This might include laboratory experiments and traveling depending on a given environmental problem to be solved. Students work together in teams on given tasks. The *third period* is reporting period. Here students report the results of their work. They present the results during open meetings with teachers and professors in which discussion of the results is essential. It can be organized in a form of symposiums or even conferences. Different stakeholders might be invited to those meetings. An evaluation of student work is based on (i) prepared plans of proceeding the work (20% of the total mark), (ii) verbal presentation and defence by each expert-group (25% of the total mark), (iii) the quality of synthesis reports of each geo-group (20% of the total mark), (iv) the efficiency of the student in working in terms of his/her creativity, independency, time management etc (35% of the total mark). Students might publish results of their work depending on its quality.

Applying the Methodology to Practical Trainings

We applied the methodology to Master students using four geo-groups. The study area was agro-ecosystems. *First geo-group* was assigned to investigate environmental aspects of growing crops in agro-ecosystems. *Second geo-group* of students paid attention on feed crops while the focus of *third and fourth geo-groups* was on technical crops and grassland respectively. Each student of geo-groups is an expert (*E*) according to the selected expert-topic. For instance, *E-1* is consists of four students, each of them from different geo-groups but with one focus on evaluating different parts of agro-ecosystems, which used to obtain different products (geo-1: crops; geo-2: feed crops; geo-3: technical crops; geo-4: grassland) to form environmentally and ecologically safe primary product zones (definitions of the zones are given in Tarariko, 1998). *E-2* contains four students from different geo-groups but with a focus on agro-ecological assessment of land to grow different crops (Medvedev, 1997). Experts of *E-3* group focused on ecological pasportization of land. Students of *E-4* group assessed soils to produce environmentally and ecological safe products (different crops according to geo-groups) and students of *E-5* group made maps based on obtained results (Ridei, et al., 2011). *E-6* group provided socio-ecological expertise of study area.

Discussion

Results showed that the integrated matrix in the methodology was a helpful tool. Based on this methodology students became more active rather than passive. Sharing of knowledge between students is a key process that encourages students to learn from each other. Furthermore, communicative and co-operative skills are developed as important contributions to their future career. After taking the trainings on the basis of group-work students are able to perform master theses and to contribute to other scientific-research work. However, this methodology is still required to be improved in terms of integrating international standards to educational processes, defining in a more clear way objectives and tasks between students, encouraging students to accept this type of methodology since individual work has been applied over time. This methodology could be applied to other programs of the university. We also hope to facilitate cooperation between the Ukrainian university and international university.

References

Ridei, N., Strokal, V. & Rybalko Yu. (2011). *Env. assessment of agroecosystems*. Kherson, Oldi-plus. 568.

Ridei, N. (2011). *Stage training of future ecologists: Theory and Practice*. Kherson, Oldi-plus. 650.

Medvedev,V. (1997). Agro ecological assessment of Ukrainian land and distribution of agricultural crops. *Kiev, Agrarian Science*. 162.

Tarariko, O. (1998). An assessment of cropland suitability for formation of ecological primary product zones and farms for child and diabetic food production in Ukraine (methodological guidelines). Kiev. 58/

DG Education and Culture, (2005). *Standards and Guidelines for Quality Assurance in the European Higher Education Area*. European Association for Quality Assurance in Higher Education, Helsinki

UNESCO, (2004). Rediscovering higher education in Europe. *Studies on higher eduction*. 148 pp. Bucharest

Blackman, R. (2003). Project cycle management. Resourcing Organizations with Opportunities for Transformation and Sharing (ROOTS 5). 72pp. Teddington, UK,

Websites: 1). http://www.blueflag.org/ 2). http://www.wur.nl/UK/.

Practice Before Assessment: Active Learning Strategies

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Abstract: Providing students with an opportunity to practice that which they will be assessed on is a vital step in the teaching-learning process. The use of active learning can make those practice experiences more engaging and meaningful. This session will highlight step three of the five-step process toward higher level thinking. Numerous active learning techniques and strategies will be presented, engaging the attendees as active participants, while arming them with ideas that can be implemented immediately within their own classrooms.

Literature Review

Active learning, simply defined by Paulson and Faust (1998), is anything that students do in regard to their learning other than passively listening to an instructor's lecture. In effect, they are techniques that allow students to engage in higher level thinking such as analyzing, evaluating, and creating. Collaborative learning groups, student-led review sessions, problem-based learning, simulations, analysis of videos, student debates, and concept mapping are some examples of techniques that promote active learning and thereby higher level thinking.

Research has supported active learning as an effective teaching technique. According to TA Consultants (n.d.), "regardless of the subject matter, when active learning is compared to traditional teaching methods (such as lecture), students learn more material, retain the information longer, and enjoy the class more" (para. 2).

Bonwell and Eison (1991) described active learning as involving the students in activities that cause them to think about what they are doing. Fink (2003) indicated that the concept of active learning supports research which shows that students learn more and retain knowledge longer when they acquire that knowledge in an active rather than passive manner. To make learning more active, some kind of experiential learning and opportunities for reflective dialog should be included as part of the course.

To make active learning work, the teacher must surrender some class control, but this increases the responsibility that students must take, both for what they learn and how they learn it (TA Consultant, n.d.). Although the use of active learning can pose some adjustment for teachers and students, this mode of instruction comes with many benefits. According to McKinny (2011), active learning causes students to discover, process, and apply what they are learning.

Goals and Objectives for the Practice Session

The purpose of this practice session is to briefly introduce a five-step process for increasing opportunities for higher level thinking, with the main emphasis on the third step of the framework, Practice Before Assessment. Participants will take part in a number of active learning events that they can then use in a classroom or online learning situation. The session participants will:
- Understand the five-step process for increasing higher level thinking; specifically, Step 3. Practice Before Assessment,
- Take part in active learning activities introduced in the session, and
- Share additional active learning ideas with the session participants.

Description of the Practice to be Exemplified

The presenters have developed a five-step *Process for the Development of Higher Level Thinking Skills*. After a brief overview of this process, the session will turn all attention to step three, *Practice Before Assessment* and the introduction of numerous active learning techniques.

The five step process is show in Figure 1. Step 1. Determine Learning Objectives; Step 2. Teach Through Questioning; Step 3. Practice Before Assessment; Step 4. Review, Refine, and Improve; and Step 5. Provide Feedback and Assessment of Learning.

To make learning more active and to encourage students to participate in higher level thinking, students must do things like pose arguments, state opinions, and critique evidence using primary and secondary sources. Practice is necessary to master any skill; students must have the opportunity to practice the knowledge, skills, attitudes, and behaviors that will be evaluated. Therefore, choosing learning activities that allow them to practice, while causing them to critically think, is important (Schafersman, 1991).

To fully engage students in this process, teachers must be armed with dynamic and creative ideas for active learning. This session will provide an opportunity for attendees to participate in active learning techniques, discuss the best implementation of those techniques, and share techniques they have used with the other session attendees.

Discussion

The use of active learning is a key success factor in moving students toward higher level thinking, an important goal of all teachers. Active learning can make a course more enjoyable for both teachers and students. However, for this to happen, educators must give up the belief that students will be unable to learn the subject at hand unless the teacher "covers it". While students may gain some exposure to material through pre-class readings and overview lectures, true understanding of the material takes place when they are actively involved with and reflect on the meaning of what they are doing.

Figure 1. Process for the Development of Higher Level Thinking Skills

References

Bonwell, C. C., & Eison, J. A. (1991). Active learning: Creating excitement in the classroom. Retrieved from http://www.ntlf.com/html/lib/bib/91-9dig.htm

Fink, L. D. (2003). Creating significant learning experiences: An integrated approach to designing college classes. (1st ed.). Jossey-Bass: John Wiley & Sons, Inc.

McKinny, K. (2011). Active learning. Center for Teaching and Learning, Illinois State University. Retrieved from http://www.cat.ilstu.edu/additional/tips/newactive.php

Paulson, D. R., & Faust, J. L. (1998). Active learning in the college classroom. Journal on Excellence in College Teaching, 9(2), 3-24.

Schafersman, Steve D. (1991). An introduction to critical thinking. Retrieved May 13, 2010, from http://www.freeinquiry.com/critical-thinking.html

TA Consultants. (n.d.). Active learning. Center for Excellence in Teaching and Learning, University of California, Davis. Retrieved from http://cetl.ucdavis.edu/wp-content/uploads/2010/10/Active-learning.pdf

Promoting Conceptual Change Through Cognitive Conflict

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Abstract: This presentation will begin with a brief introduction to the ideas of conceptual change and cognitive conflict in the context of common student misconceptions about probability. We will discuss how these misconceptions affect student understanding of key concepts in probability, such as independence and conditional probability, that impact acquisition of statistical literacy. Classroom activities that introduce cognitive conflict to effect lasting change in these misconceptions will be practiced with session participants. Finally, we will encourage discussion of ways to introduce cognitive conflict in other disciplines beginning with some examples from science education.

Literature Review

According to Clark and Lovric (2009, pp. 756-757), *"Cognitive conflict* and *conceptual change* refer to situations in which new knowledge (learned by a child, a student, or discovered by a research scientist) is incompatible with prior knowledge, and hence might affect understanding of the material…. Faced with having to absorb material that is in some way incompatible with prior knowledge…an individual will try to assimilate new information into their existing framework, thus creating a so-called synthetic model. As mixtures of beliefs and scientific facts, these synthetic models represent *misconceptions* about the subject" (emphasis added).

Cognitive psychology has a rich research history in the area of reasoning under uncertainty which identified heuristics that often replace formal probability calculation in daily decision-making (Gilovich, Griffin, & Kahneman, 2002). Recent reviews of statistics education research note the continued persistence of the *representativeness heuristic* and the *availability heuristic*, as well as the *equiprobability bias* that arises from them, despite instructional efforts to improve the accuracy of statistical reasoning (Garfield & Ben-Zvi, 2007; Shaughnessy, 2007; Wood & Feldon, under review). Misconceptions, faulty heuristics, and biases impede students' acquisition of necessary skills for statistical literacy, reasoning, and thinking (Ben-Zvi & Garfield, 2008).

Science education has several examples of successfully confronting persistent misconceptions through careful introduction of cognitive conflict (Clement, 1987; Longfield, 2009). Fast (1999) and Liu (2010) have applied the same concepts in efforts to address misconceptions in probability and statistics. We present classroom tasks that are anecdotally effective in the reduction of the representativeness and availability heuristics. We also wish to encourage additional researchers to test them empirically.

Goals and Objectives

- Clear definitions of "conceptual change" and "cognitive conflict,"
- Understanding of representativeness heuristic and availability heuristic,
- Awareness of the connection between probability misconceptions and poor statistical literacy,
- Experience with activities designed to provide cognitive conflict in probability instruction, and
- Connection with educators and researchers in other disciplines interested in further investigation of conceptual change through cognitive conflict as pedagogical tools.

Description of Practice

A collection of classroom activities will be demonstrated and shared during the presentation. Activities will include the following: (1) a series of questions designed to promote cognitive conflict within the context of probability misconceptions, (2) classroom activities/handouts to help address these misconceptions, (3) interactive websites and applets, and (4) suggestions for introducing difficult concepts with manipulatives. If time permits, we will discuss specific problems in probability such as the Monty Hall problem and Quincunx.

Discussion

Topics for open discussion will depend on the audience. Further exploration of probability misconceptions and ways to introduce significant cognitive conflict or planning of empirical data gathering on implementation of the activities presented would be possible topics if the audience is mainly mathematics or statistics educators. Discussion of additional examples from science and mathematics may be useful if the audience is more broadly STEM-affiliated. A highly emergent conversation may be appropriate if participants range into the social sciences, health sciences, humanities or arts.

References

Ben-Zvi, D., & Garfield, J. (2008). Introducing the Emerging Discipline of Statistics Education, *School Science & Mathematics*, 108(8), 355-361.

Clark, M., & Lovric, M. (2009). Understanding Secondary-Tertiary Transition in Mathematics, *International Journal of Mathematical Education in Science and Technology*, 40(6), 755-776.

Clement, J. (1987). Overcoming Students' Misconceptions in Physics: The Role of Anchoring Intuitions and Analogical Validity, in Proceedings of the International Seminar *Misconceptions And Educational Strategies in Science and Mathematics* (Vol. 3), pp. 84-97.

Fast, G.R. (1999). Analogies and Reconstruction of Probability Knowledge, *School Science and Mathematics*, 99(5), 230-240.

Garfield, J., & Ben-Zvi, D. (2007). How students learn statistics Revisited: A Current Review of Research on teaching and learning statistics. *International Statistical Review*, 75(3), 372-396.

Gilovich, T., Griffin, D., & Kahneman, D. (2002). *Heuristics and Biases: The Psychology of Intuitive Judgment*. Cambridge, UK: Cambridge University Press.

Liu, Tzu-Chien (2010). Developing simulation-based computer assisted learning to correct students' statistical misconceptions based on cognitive conflict theory, using 'correlation' as an example. *Journal of Educational Technology & Society*, 13(2), 180-192.

Longfield, J. (2009). Discrepant teaching events: Using an inquiry stance to address students' misconceptions. *International Journal of Teaching and Learning in Higher Education*, 21(2), 266-271.

Shaughnessy, J. M. (2007). Research on statistics learning and reasoning, In *Second Handbook of Research on Mathematics Teaching and Learning: A Project of the National Council of Teachers of Mathematics,* ed. F. K. Lester, Charlotte, NC: Information Age Publishing.

Wood, B. L. & Feldon, D. F. (under review). Conceptual change in statistics education. Submitted to *Journal of Statistics Education*.

Promoting Reflective Practice in Students With Web 2.0

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Abstract: This practice paper firstly reports findings from a longitudinal self-study undertaken to understand Web 2.0 methods and consequences of engaging students in new types of reflective practice such as Blogging, Vlogging and Collaging (Calandra, Gurvitch, & Lund, 2008; Gomez, Sherin, Griesdorn, & Finn, 2008; Maclean & White, 2007; Martindale & Wiley, 2005; Rhine & Bryant, 2007). Secondly, this presentation will demonstrate the successful Web 2.0 strategies, in the context of higher education pedagogy as supported by the author's research, and share the pedagogical processes that can promote student voice and identity, as part of their pathway to deeper learning and, ultimately, graduation. Objectives for participants: they will be able to recognize reflective practice and engage in creating prompts for their own disciplines to promote reflective practice. They will also utilize best practices for assessing reflective practice exemplars.

Literature Review

Teacher educators have embraced reflective practice (e.g., Dewey, 1933; Fenstermacher, 1994, Freese, 1999; Schön, 1983, 1987; Van Manen, 1977) because of its reported ability to improve the preparation of teachers (Larrivee, 2008; Hume, 2009; Rickards et.al, 2008; Sparks-Langer et.al, 1990). This emphasis has been observed in discipline-specific teacher education (Campbell, Thompson & Barrett, 2010; Chaffin & Manfredo, 2010; Conkling, 2003; Sheldon & DeNardo, 2004) however, Web 2.0 reflective practices are somewhat elusive in the literature (e.g., Bauer & Dunn, 2003; Berg & Lind, 2003) and their perceived potential as teacher identity and development strategies may not be fully recognized.

Methodology

The author initially reviewed her own practices, in a pilot study to gain insight into her students' reflective understandings and their use of Web 2.0 modalities. Using analytic induction and content analysis firstly in 2009 in collaboration with another School of Education teacher educator (Parkes & Kajder, 2010), repeated analyses were then conducted independently over three years to compare levels within and between reflection products from music student cohorts. Student teachers were asked to Blog one week, and Vlog the next, alternating. Prompts were kept to a minimum however and in 2010 and 2011 rubrics for evaluating reflective practice were shared and used with students. Additionally, a video Collage assignment was designed for students (in 2010 and 2011) in order for them to use another modality to show what they were learning about their own teaching practice over time. The video Collage assignment was required at 3 points in the Spring student teaching semester, at the end of each month (February, March, April). Feedback was given for the Collage assignments in class with peer evaluation and the discussion followed which enabled students to deepen their understanding of what was required for 'reflection over time". As a class, the reliability was calculated for the rubric in pairs, to establish at least inter-rater percentages. The percent agreement figure for students' peer evaluations for the 2010 Assignment 1 for two collages selected was .91 and .95. This improved for Assignment 2 where the agreements from students were .96 and .98 respectively for another two randomly selected collages.

Results

Differences in levels of reflective practice were observed both *within* modalities (Blogging, Vlogging, and Collaging) as well as *between* cohorts of students; from year to year in response to curricula change. There was more Level 2 Reflection, (Pedagogical as described by Larrivee, 2004) in the Videologs, than in the weblogs. Pedagogical Reflection is deeper than Surface Reflection (Level 1) and deals with impacts observed in learning, for example, rather than merely describing content or processes (as found in Surface Reflection). The use of rubrics to evaluate reflective practice also made the process and expectations transparent to students, and instances of Level 1 and 2 reflective practices increased over 2010 and 2011 especially. When students were tasked with creating video Collages of their teaching practice, a new level of self-awareness and Level 2 reflection was more evident across the semester, improvement shown at three points, in the Collage assignments.

Discussion

Findings suggest that college educators need also to be comfortable with wider technological expertise if their students' reflective practices are to improve across several modalities. Additionally, it reminds us that guidance and feedback for students continues to be important, particularly with the use of rubrics and other tools, such as video annotation tools (Rich & Hannafin, 2009). The role of the multiple modalities in this context appears to be powerfully salient, particularly in developing a 'community' of learner identities within cohorts when peer evaluation is employed. The longitudinal research findings of increased instances of reflection support and justify the use of distinct Web 2.0 reflective practices with students.

References

Bauer, W. & Dunn, R. E. (2003). Digital reflection: The electronic portfolio in music teacher education. *Journal of Music Teacher Education*, 13(1), 7-20

Berg, M. H. & Lind, V. R. (2003). Preservice music teacher electronic portfolios: Integrating reflection and technology. *Journal of Music Teacher Education*, 12(2), 18-28.

Calandra, B., Gurvitch, R., & Lund, L. (2008). An exploratory study of digital video as a tool for teacher preparation. *Journal of Technology and Teacher Education,* 16(2), p. 137-153.

Campbell, M. R., Thompson, L. K., & Barrett, J. R. (2010). *Constructing a personal orientation to music teaching*. New York; Routledge, Taylor and Francis.

Chaffin, C. & Manfredo, J. (2010). Perceptions of preservice teachers regarding feedback and guided reflection in an instrumental early field experience. *Journal of Music Teacher Education*, 19(2), 57-72.

Conkling, S. W. (2003). Uncovering preservice music teachers' reflective thinking: Making sense of learning to teach. Bulletin for the Council of Research in Music Education, 155, 11-23.

Dewey, J. (1933) How We Think. A restatement of the relation of reflective thinking to the educative process. Boston, DC: Heath Co.

Fenstermacher, G. D. (1994). The knower and the known: The nature of knowledge in research on teaching. *Review of Research in Education,* 20, 3-55.

Freese, A. R. (1999). The role of reflection on preservice teachers' development in the context of professional development school. *Teaching and Teacher Education*, 15(8), 895-909.

Gomez, L. M., Sherin, M. G., Griesdorn, J., and Finn, L.(2008). Creating social relationships: The role of technology in preservice teacher preparation. *Journal of Teacher Education*, 59(2), 117-131.

Hume, A. (2009). Promoting higher levels of reflective writing in student journals. *Higher Education Research & Development*, 28(3), 247-260.

Larrivee, B. (2008). Development of a tool to assess teacher's level of reflective practice. *Reflective Practice*, 9(3), 341-360.

Maclean, R. & White, S. (2007). Video reflection and the formation of teacher identity in a team of pre-service and experienced teachers. *Reflective Practice*, 8(1), 47-60

Martindale, T. & Wiley, D. A. (2005) Using weblogs in scholarship and teaching. *TechTrends*, 49(2), 55-61.

Parkes, K. A. & Kajder, S. B. (2010). Eliciting and assessing reflective practice: A case study in Web 2.0 Technologies. *International Journal of Teaching and Learning*, 22(2), 218-220.

Rich, P. J. & Hannafin, M. (2009). Technologies to scaffold, structure, and transform teacher reflection. *Journal of Teacher Education*, 60(1), 52-67.

Rickards, W. H., Diez, M. E., Ehley, L., Guildbault, L. F., Loacker, G., Hart, J. R., & Smith, P. C. (2008). Learning, reflection and electronic portfolios: Stepping toward an assessment practice. *Journal of General Education*, 57(1), 31-50.

Rhine, S. & Bryant, J. (2007). Enhancing pre-service teachers' reflective practice with digital video-based dialogue. *Reflective Practice*, 8(3), 345-358.

Schön, D. A. (1983). The structure of reflection-in action, The reflective practitioner: How professionals think in action. (pp. 128-167). New York, NY: Basic Books.

Schön, D. A. (1987). Educating the reflective practitioner. San Francisco, CA: Jossey-Bass.

Sheldon, D. A. & DeNardo, G. (2004). Comparing prospective freshmen and preservice music education majors' reflections of music interactions. *Journal of Music Teacher Education*, 14(1), 39-44.

Sparks-Langer, G., Simmons, J., Pasch, M., Colton, A., & Starko, A. (1990). Reflective pedagogical thinking: How can we promote it and measure it? *Journal of Teacher Education*, 41, 23-32.

Van Manen, M. (1977). Linking ways of knowing with ways of being practical. *Curriculum Inquiry* 6(3), 205-228.

Rapid Creation of Rich Media Learning Experiences for Learners With Low Connectivity

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Abstract: While over one in every four courses taken in higher education are taken online, connectivity remains a significant barrier for many students, particularly those from low SES backgrounds. As a result, rich and immersive online learning experiences are frequently not available to these students. While a CD based approach has frequently been offered as a solution, many of the lowest cost devices (e.g. netbooks and low cost tablets) are not able to utilize this media. This session will illustrate how the interactive features with a PDF can be leveraged to include structured arrays of rich assets and learning experiences. This will include the presentation of an actual course that is being designed and deployed using this methodology. The focus will be spilt between illustrating the pedagogical soundness and easy authorship related to this technique.

Reflections: Teaching in a Virtual Environment

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Abstract: Engaging students in an on-line studio art course can be a daunting task. This presentation will evaluate the efficacy of teaching in an online virtual environment as a way to increase student engagement in distance learning studio art courses. The virtual world would provide opportunities for real-time, presence between student-faculty and student-student interaction. Since traditional studio art courses require classroom time for the student to receive feedback from the instructor and their peers thus these do not work well for the traditional on-line courses. This is when I decided to come up with a virtual environment that would contain a classroom for lecturing, a gallery for viewing and criticism of art and a playground where students can build in the virtual environment. By working with Bill Pylmale, Andrew Lincoln from InnovationSpaces and Dr. Jennifer Sparrow (Director, Emerging Technologies and New Ventures) along with help Robert Fentress (Institute for Distance & Distributed Learning) I was able to developing a virtual classroom, gallery and playground.

Literature Review

There are not many studio courses on-line because of the importance of the professor and peers' presence. So the virtual environment came to be a natural selection to simulate this presence. The idea of creating a gallery where students could view each other's work and they can give commentary. To see a face and hear someone else speak about the work gave more importance to the event and made the students interact with each other positively. (Sherry 2000) Giving the student a strong seen of being activity engaged in the classroom (Warburton 2009). Looking at various virtual campuses and attending a conference at University of North Carolina in Pembroke on 2nd life campus helped me become aware of the importance of audio, (Koenradd, 2008) to be more spontaneous with the reviews and criticism using the voice as apart of the physical presence simulated through the virtual classroom and gallery.

Goals and Objectives for the Practice Season

This practice season will be a tour of the virtual classroom, gallery and playground. And demonstrate how a student can easily make an account, download the viewer, add the grid address for the class and of how student can acclimatize to the virtual environment. In addition I will show a video of a criticism in season from the Digital Photography course. This video will help demonstrate how students interacted more by simulating a virtual presence on-line. I will demonstrate the interface of the virtual space, showing both audio and streaming media capabilities and email sending possibilities. I will state what I envision for the space as it develops into a more fully function site. The remainder of the season is to give you on hands experiences in playing in the virtual space. There will be 5 laptops on hand for people to try and play in the virtual space.

Description of the Practice

Participants who attend this session will learn how the virtual environment can enhance the on-line distance learning experiences. They will observe demonstrations of using a virtual world to excite and enhance student learning. Participates will be encourage to actively participate and join the virtual environment. They will be able to play with an Avatar, and build in the playground.

Discussion

This presentation is based on reflections from my experiences in developing a virtual environment for distance learning studio course. I want to bring up the ideas of creating an environment that will address issues of effective learning and outcomes. By clarifying ideas visually, especially since this is a study course I will broach upon and give examples how the final virtual environment will look like for the student in the coming years.

References

Sherry, L. (2000). The nature and purpose of online conversations: A brief synthesis of current research. International Journal of Educational Telecommunications, 6 (1), 19-52.

Warburton, S. (2009). Second Life in higher education: Assessing the potential for and the barriers to deploying virtual worlds in learning and teaching. British Journal of Educational Technology, 40: 414–426.

Koenraad, Ton. How can 3D Virtual Worlds contribute to language education? Focus on the Language Village 3rd International WorldCALL Conference: Using Technologies for Language Learning (WorldCALL 2008, Fukuoka, Japan)

Reflective Writing as a Tool for Generalization of Learning in the Preprofessional Field Experience

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Abstract: Reflective journal writing as a tool for generalization of learning is the focus of this practice session. Reflective writing is a well-documented practice in preprofessional programs in many fields. Participants in this session will learn about the use of reflective journal writing with dialogic feedback with student teachers in a special education preprofessional program. The process of teaching a structure for reflective writing, creating scaffolded prompts, and providing feedback will be discussed and modeled by two faculty members. Participants will interact with samples of reflective writing that demonstrate generalization of learning and will engage in dialogue with student teacher participants about their experiences with reflective writing as a tool for professional growth.

Literature Review

Preprofessional students straddle two worlds during their field experience placements. They simultaneously enact the dual roles of student and professional (Lave & Wenger, 1991). The transition from college or university student to professional is a change in identity that is deeply grounded in the field experience (Lave & Wenger, 1991). Preprofessional students become members of their professional communities through the professional acts they observe and commit during the capstone field placements. As students have increasing autonomy to make professional decisions in their field experiences, they adopt the social, cultural, and practical norms of the communities to which they want to belong. Thus, it is unsurprising that preprofessional students will resist and/or reject professional practices that are not supported by the professional communities in which they are immersed during the capstone experience.

In many preprofessional programs, including teaching, colleges and universities are challenged to balance the need to find adequate field experience placements for all students in their programs with the need to maximize the quality of these experiences for their students (Clift & Brady, 2005; Dymond, Renzaglia, Halle, Chadsey, & Bentz, 2008; Joyce & Showers, 2002; Timperley, 2008). Geography, financial constraints, and high rates of turnover in certain professions, often require that colleges and universities accept field placements that are less than ideal for their preprofessional students. Given these constraints as well as the known influences of situated learning and apprenticeship on preprofessional students' future beliefs and practices, it is critically important that faculty explore tools to help students make explicit connections between the effective practices and theoretical knowledge from academic coursework and the lived experiences of the capstone placement (Iran-Nejad, 199). Carefully mentored reflective writing with ongoing structured feedback may be an effective instructional practice that addresses these concerns.

Goals and Objectives for the Practice Session

During this interactive session, participants will have opportunities to:
1. Describe the importance of generalization between preservice teachers' coursework and their experiential learning during the student teaching field placement and identify known barriers to such generalization,
2. Discuss reflective writing as a tool to increase generalization,
3. Utilize a reflective cycle structure to create scaffolded reflective journal prompts,
4. Observe and analyze reflective writing samples for evidence of increased connections between coursework and student teaching experiences, and
5. Interact with and discuss the meaning of reflective writing and its relationship to the lived experiences of student teaching with student teacher participants.

Description of the Practice to Be Modeled

Eleven students enrolled in a preprofessional graduate program in special education were mentored to regularly enact guided reflective writing as part of their field experience. The students worked to connect their lived professional experiences in elementary and high school public education settings to their academic knowledge and

to professional standards in order to make meaning of their lived experiences. Faculty introduced students to a reflective cycle structure (UNCG, 2009), then provided scaffolded journal prompts weekly. Faculty used dialogic feedback to engage with the students through their writing. The goal was to support the student's emerging ability to think critically about their skills, beliefs, and professional practices during the field placement. In this session, faculty and student teacher participants will describe, model, and interpret their experiences with reflective writing as part of the preprofessional field experience.

Discussion

Anecdotal data from two faculty members and their preprofessional students suggest that mentored reflective writing supports students' abilities to be intentional and deliberate about the ways in which they apply their academic knowledge as they engage in their field experiences. Initial reflective journal entries from this group included primarily surface level descriptive responses and in some instances, a view of journal writing as a required paper exercise only, not as a tool for critical analysis and learning in a profession. Understanding that reflective journal writing as a tool for learning is an established and researched practice in many areas of preprofessional practice, including the medical fields, social work fields, and other areas of teacher preparation (Hume, 2008; McNaught, 2010; Rai, 2010; Wald & Reis, 2010), the presenters of this session chose to instruct students on the use of a reflective cycle and guided questions to enhance their reflective practices. A higher level of critical analysis of events and personal assumptions and responses to these events emerged over time. Increased ability to integrate knowledge gained from coursework and the scholarly literature with professional standards and specific experiences within the field placement occurred. Student teachers were also better able to project how they could generalize their current experiences to their future work as career special educators.

References

Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher,* 33(8).

Dymond, S. K., Renzaglia, A., Halle, J. W., Chadsey, J., & Bentz, J. L. (2008). An evaluation of videoconferencing as a supportive technology for practicum supervision. *Teacher Education and Special Education, 31,* 243-267.

Hume, A. (2009). Promoting higher levels of reflection in student journals. *Higher Education Research and Development,* 28(3), 247-260.

Iran-Nejad, A. (1995). Constructivism as substitute for memorization in learning: Meaning is created by learner. *Education*, *116*, 16-31.

Joyce, B. & Showers, B. (2002) *Student achievement through staff development.* Alexandria, VA: ASDC.

Lave, J. & Wenger, J. (1991). *Situated learning*. Cambridge, MA: Cambridge University Press.

McNaught, K. (2010). Reflective writing in mathematics education programmes. *Reflective Practice,* 11(3), 369-379.

Rai, L. (2006). Owning (up to) reflective writing in social work education. *Social Work Education,* 25(8), 785-797.

Reagan, T.G., Case, C.W., & Brubacher, J.W. (2000). Becoming a reflective educator: How to build a culture of inquiry in the schools (2nd ed.). Thousand Oaks, CA: Corwin.

Timperley, H. S. (2008). *Teacher professional learning and development.* The Netherlands: International Academy of Education / International Bureau of Education.

University of North Carolina at Greensboro (2009). *Specialized Education Services Graduate Program Student Handbook*. Greensboro, NC: University of North Carolina at Greensboro.

Wald, H. S., & Reis, S. P. (2010). Beyond the margins: Reflective writing and development of reflective capacity in medical education. *JGIM: Journal of General Internal Medicine,* 25(7), 746-749. DOI: 10.1007/s11606-010-1347-4

Self and Peer Assessment Tools: A Technology Stewardship Perspective

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Abstract: Self and peer assessment (SPA) is considered an important component of collaborative group-work and when accomplished using an online tool can afford a more seamless experience for learner and instructor as well as providing useful data for educators. However there is a range of possible approaches to realizing online SPA and it is not always easy for instructors to choose the most appropriate online application. We have found the technology stewardship concept recently proposed by Etienne Wenger to be a useful construct in making decisions about the implementation of SPA and other tools. The practice session will provide examples of the application of technology stewardship during the introduction of online pedagogical tools to an undergraduate course. The practical component of the session is based around an activity involving individual reflection on memorable learning events leading to small group discussion on the topic. Next, individual participants engage in a self and peer assessment of their contribution in the group discussion using an online tool. This is followed by a plenary discussion on the technology stewardship of SPA tools and some criteria for choosing between 3 existing SPA tool options.

Literature Review

Self and peer assessment is often considered an important component of collaborative group-work (Johnson, Johnson and Smith 1991, Paulson 1999) because it can reduce the possibility of free-riders in group projects while at the same time giving learners practice in exercising judgment which can be an important professional competence in itself (Willey and Gardiner 2007, Wilmot and Crawford 2009, Beamish et al 2009, Neto, Williams and Carvalho 2011)

With the increasing emphasis on quality assurance and accountability in European higher education (EUA 2009) and a rapid proliferation of IT technology and tools which make claims to help achieve this, educators here have been increasingly faced with decisions relating to tool design and selection – issues described by Wenger, White and Smith (2009) as falling within the domain of technology stewardship. Wenger et al state: "Technology stewards are people with enough experience of the workings of a community to understand its technology needs, and enough experience with technology to take leadership in addressing those needs. Stewardship typically includes selecting and configuring technology, as well as supporting its use in the practice of the community". While the concept was originally proposed from an informal learning community perspective, many higher education practitioners may recognize this as describing a growing portion of their professional activity although those of us in the engineering education domain would also want to emphasize tool design as part of the remit of technology stewards.

Since the publication of their book Digital Habitats (Wenger et al, 2009) the concept of technology stewardship has begun to be applied in a variety of learning communities and the authors have found it particularly useful in our work with SPA tools. In the engineering education context we would characterize technology stewardship as a process in the service of teaching and learning that involves the design, adoption or adaptation of educational technology and the subsequent facilitation of its use.

Various authors have referred to the dangers of making technology selection decisions which are not grounded on sound pedagogical foundations (Bates and Poole, 2003 and Laurillard, 2009) and a strength of Wenger's approach is that he places learning and its facilitation at the center of the process from which subsequent decisions about technology will flow.

Objectives

Participants will:
- Engage in reflection on personally memorable learning experiences in both formal and non-formal settings,
- Acquire hands-on user experience of an online self and peer assessment tool,

- Discuss the concept of technology stewardship in the context of decision-making with regard to SPA online tools, and
- Discuss practical aspects of the facilitation of SPA tools in education - although examples presented are taken from the context of engineering education, the underlying principles and practice have broad applications wherever collaborative project work is used.

Note: As individual participants will be accessing an online application hosted on an overseas server, the session requires each participant to have a computer with internet access.

<div align="center">References</div>

Bates, A. W. & Poole, G. (2003). *Effective teaching with technology in higher education. Foundations for success*. San Francisco: Jossey-Bass

Beamish, B., Kizil, M., Willey, K. & Gardner, A.P. (2009), Monitoring mining engineering undergraduate perceptions of contribution to group project work. Proceedings of the 20th Australasian Association for Engineering Education (AAEE) Conference, (pp. 318-325). Adelaide, Australia

E.U.A. (2011) Quality Assurance and Accountability, European University Association. Retrieved 12/10/ 2011 from http://www.eua.be/eua-work-and-policy-area/quality-assurance/

Johnson, D., Johnson, R., & Smith, K. (1991), Cooperative Learning: Increasing College Faculty Instructional Productivity, ASHE-ERIC Report on Higher Education, Washington, D.C.: The George Washington University, retrieved 30/2/2007 from http://fc1.tamu.edu/index.html.

Laurillard, D. (2009). The pedagogical challenges to collaborative technologies. *International Journal of Computer-Supported Collaborative Learning*, 4(1), 5-20.

Neto, P., Williams, B., Carvalho, I., (2011) Towards technology stewardship: tools for encouraging student engagement, Proceedings of the Research in Engineering Education Symposium, Madrid October 4 – 7, 2011, retrieved 12/10/ 2011 from http://www.contigovoy.es/rees/submissions/rees2011_submission_78.pdf

Paulson, D, R. (1999) "Active Learning and Cooperative Learning in the Organic Chemistry Lecture Class". J. Chem. Educ., Vol. 76, No. 1136.

Willmot, P. & Crawford, A.R. (2007), Peer Review of team marks using a web-based tool: an evaluation, Engineering Education, Journal of the Higher Education Academy Engineering Subject Centre, Vol 2, (1), 59-66.

Willey, K. & Gardner, A. (2009) Changing students' perceptions of self- and peer assessment, Proceedings of the Research in Engineering Education Symposium, Cairns, Australia, July 20-23.

Wenger, E., White, N. & Smith, J. (2009) Digital Habitats, stewarding technology for communities, CPsquare.

Soft Teaching With Silver Bullets:
Digital Natives, Learning Styles, and the Truth About Best Practices

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Abstract: As conscientious educators, we seek innovative and practical ways to engage our students in learning. In our quest for best practices and with our limited time, energy, and resources, we are prone to "Silver Bullet Syndrome"; we succumb to the allure of the easy fix, promised by the next big thing in technology and/or theory. There are two perceived silver bullets on the educational scene today that should cause us special concern as educators who are searching for the truth about best practices: the concept of Digital Nativism and the pseudo-theory of VAK learning styles. This practice session will encourage participants to generate a definition of "soft" teaching by exploring our misconceptions of silver bullets and to articulate teaching and learning practices that truly are *best* in light of human cognition and learning.

Literature Review

With a single silver bullet, the Lone Ranger was able to wipe out crime and injustice, bypassing any unnecessary waste of time, energy, and resources. Since its appearance on radio and television in the early 20th century, the silver bullet has become a modern idiom, referring to a quick and effective, one-shot solution to a problem. An iconic holy grail for the 21st century, the silver bullet is sought by everyone with a problem to solve—from computer programmers, to organizational managers, to educators. In our quest, we fall susceptible to "Silver Bullet Syndrome" (Brooks, 1987), a malady that convinces us that the next big thing – technological and/or theoretical – will be just what we need to be successful in our endeavors to solve those problems that plague us professionally. Desperate for the quick fix solutions, we fall prey to false prophets and snake oil salesmen; we make erroneous assumptions, the consequences of which—paradoxically—lead us ultimately to waste time, energy, and resources.

As teachers, we are well intentioned and practical. Faced with limited time, energy, and resources, who wouldn't want a one-size-fits-all technique that would make even the most challenged student "get it"? There must be a formula, a magical "best practice." We rely on the next big thing to help us solve our problems, and we assume this thing is vetted and validated. It appears in the mainstream; buzzwords have been generated around it. We see it in print, in textbooks; it's foundational to curriculum development and instructional design. The allure of the silver glint overrides our better judgment and we succumb to the fairy tale; our teaching becomes soft, based on the *perception* of best practice instead of the *realities* of human cognition. There are two perceived silver bullets on the educational scene today that should cause us special concern as educators who are searching for the truth about best practices: the concept of Digital Nativism and the pseudo-theory of VAK learning styles. While no organization is equipped to squander resources, those of us in education, those of us responsible for the generation of future intellectual resources, cannot afford to succumb to these unfounded mythologies.

Video game developer turned futurist Marc Prensky (2001a, 2001b) has told us that we are immigrants in a brave new digital world where we are rendered ineffectual due to a fundamental neurological difference between ourselves and our students, the Digital Natives. Citing misinterpreted research in neuroplasticity that he purports to support the physiological influence of technological experience on brain structures, Prensky charges us with the task of learning a new "language" so that we might communicate more successfully with the natives (2001b). He maintains that our "tradition-bound" curriculum and instruction is unintelligible to an entire generation whose brain structures—inherently different from our own—would be better served if we taught using computer games (2001a, p. 5; 2001b). Prensky's silver bullet is gaming technology. Even amid the still-raging battle of *no significant difference* regarding the mode of information delivery and student learning (Russell, 1999; WCET, 2010) and the criticism of Digital Nativism as an "academic form of moral panic" (Bennett, Maton, & Kervin, 2008, p. 782) we want to believe in the ease and simplicity of Prensky's assertion.

Although it would be quite efficient to consider our students as homogeneous members of a generation, experience and cultural imperatives dictate that we must see our students as individuals, heterogeneous in their experiences and their abilities. Instead of pursuing the more arduous path of "creating learning environments that *develop* talent rather than merely select it" (Bransford, 1979, p. 10), which would require that we examine underlying cognitive processes that influence our individual abilities to learn, we opt for the silver bullet. Ironically, we return to the more

homogeneous groupings offered through various learning style hypotheses. Contrary to early learning styles research, which was primarily concerned with "the habits and other behaviours of individuals and not their abilities" (Sharp, Bowker, & Byrne, 2008, p. 294), contemporary proponents of learning styles maintain the empirically unfounded assertion that "individualizing instruction to the learner's style can allow people to achieve a better learning outcome" (Pashler, McDaniel, Rohrer, & Bjork, 2009, p. 108). While several learning style theories exist, among the most popular is the simplified and widely implemented VAK theory, ascribed to Alistair Smith (1996; Sharp, et al., 2008), which maintains that learners fall into one of three categories: visual, auditory, or kinesthetic. This tidy categorization allows for the "development and marketing of learning style instruments" to meet the needs of practitioners who are accountable for student assessment outcomes (Coffield, Moseley, Hall, & Ecclestone, 2004, p. 126). Advocates of the VAK learning styles argument suggest, as does Prensky, that teachers in the 21st century are doing something wrong in their classrooms. They maintain that the ways that students *prefer* to receive information provides a correlation to "better learning," and if we are not teaching students in the ways they want to be taught, we are "just dumb (and lazy)" (Prensky, 2001a, p. 6).

Description of Practice and Discussion

Far from silver bullets, those "best practices" that have been developed in the shadow of the Digital Native and the VAK learning style mythologies entail a superficial (com)modification of the curriculum designed to appeal to the specific modal strengths of our learners and proffer a "simple solution to the complex problems of improving the attainment, motivation, attitudes, and attendance of students" (Coffield, et al., 2004, p. 126). This practice session seeks to engage participants in a critical discussion of what truly entails *best practices* for teaching and learning. After completing a basic VAK learning styles assessment and after being introduced to the concept and representative models of cognitive processing, participants will be asked to consider ways in which "soft" teaching to learning styles and to the generational assumptions of Digital Nativism might be incongruent with the actual cognitive advancement of our students.

Goals and Objectives

By the end of this session, participants will be able to:
- Define the constitution of the "Digital Natives" and "VAK Learning Styles" arguments,
- Define what is meant by "soft" teaching,
- Articulate cognitive strategies that will facilitate student learning, and
- Cite empirical examples of best practices that influence the use of beneficial cognitive strategies that lead to student learning.

References

Bennett, Maton, & Kervin, (2008). The "digital natives" debate: A critical review of the evidence. *British Journal of Educational Technology, 39*(5), 775-786.

Bransford, J. D. (1979). *Human cognition: Learning, understanding, and remembering*. Belmont, CA: Wadsworth Publishing Company.

Brooks, F. P. (1987). No silver bullet: Essence and accidents of software engineering. *IEEE Computer, 20*(4), 10-19.

Coffield, F., D. Moseley, E. Hall, & K. Ecclestone. (2004). *Should we be using learning styles? What research has to say to practice*. Learning and Skills Research Centre. Trowbridge: Cromwell Press.

Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2009). Learning styles: Concepts and evidence. *Psychological Science in the Public Interest, 9*(3), 105-119.

Prenksy, M. (2001a). Digital natives, digital immigrants. *On the Horizon, 9*(5), 1–6.

Prenksy, M. (2001b). Digital natives, digital immigrants, part II. Do they really think differently? *On the Horizon, 9*(6), 1–6.

Russell, T. L. (1999). *The no significant difference phenomenon as reported in 355 research reports, summaries and papers*. Raleigh, NC: North Carolina State University Press.

Sharp, J. G., Bowker, R., & Byrne, J. (2008).VAK or VAK-uous? Towards the trivialisation of learning and the death of scholarship. *Research Papers in Education, 23*(3), 293–314.

Smith, A. (1996) *Accelerated learning in the classroom*. Stafford: Network Educational Press.

WCET (2010). *No significant difference*. Retrieved from http://www.nosignificantdifference.org/

Strategies for Fostering Doctoral Student Persistence

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Abstract: The purpose of this session is to present research-based strategies for improving doctoral candidate retention and completion rates. We will first discuss findings from a qualitative phenomenological study examining factors associated with doctoral persistence. Derived from these findings and a synthesis of the literature on doctoral attrition, we present 5 practical strategies for improving doctoral persistence. Throughout this discussion, we will model specific practices that are found to be effective on an individual, course, program, and institutional level for increasing social presence, cognitive presence, and teaching presence. Session attendees will learn about technologies and practices they can implement to increase sense of community and, thus, persistence in their own doctoral programs. We conclude the session with a reflective discussion about how participants can modify current practices to encourage increased persistence in their doctoral programs.

Literature Review

Unfortunately, research demonstrates that doctoral students' perceived level of community with their fellow students and faculty mentor in the doctoral journey is less than desirable; thus, resulting in high attrition (Terrell, Snyder, & Dringus, 2009). In the traditional setting, doctoral attrition rates range from 40% to 60% (Smallwood, 2004), with rates in online doctoral programs estimated to be 10% to 50% higher (Carr, 2000). Creating a sense of community, whether in a traditional or online environment, is essential and can improve students' sense of satisfaction, learning, and ultimately, their persistence within their program of study (Rovai, 2002). Faculty and administration play an essential role in assisting students in providing opportunities to create community and are a primary reason doctoral candidates complete their degrees (Holsinger, 2008). Faculty and administration who desire to create a sense of community ensure three essential elements -social presence, cognitive presence, and teacher presence- are present in their courses and their programs (Garrison, Anderson, & Archer, 2000). Social presence is "the ability of participants in the Community of Inquiry to project their personal characteristics into the community, thereby presenting themselves to the other participants as *real people"* (Garrison et al., 2000, p. 89), and cognitive presence is "the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (Garrison et al., 2000, p. 89). Teaching presence is the design and the facilitation that guides the cognitive and social processes for the purpose of educationally meaningful learning outcomes (Garrison et al., 2000). Analogously, doctoral persistence research suggests that providing opportunities to develop relationship with faculty, encouraging peer relationships and connectedness, using the cohort model, giving opportunities for critical reflection and evaluation, and providing course opportunities with relevant content are key factors in doctoral candidates' persistence and completion (Galbraith, 2003; Rockinson-Szapkiw & Spaulding, under review; Seagram, Gould, & Pyke, 1998). When students feel a sense of community, they are more likely to be satisfied, learn better, and persist in their educational journey. A need exists to identify and implement practices to facilitate feelings of community; thus, increasing persistence and completion.

Goals and Objectives

As at result of this session, participants will be able to:
- Identify factors related to persistence in the doctoral process as identified in the research (Rockinson-Szapkiw, & Spaulding, under review),
- Identify specific practices on an individual, course, program, and institutional level that can increase social presence, cognitive presence, and teaching presence; thus, community and doctoral student persistence,
- Observe technologies and practices that increase doctoral students' sense of community, and
- Reflect upon current practices based on what is learned and discuss needed revisions on an individual, course, program, and institutional level.

Strategies for Fostering Doctoral Student Persistence

Every individual with a terminal degree has a story to share about their personal doctoral journey. Their stories include reasons that they persisted unto completion. Each story is unique; however, they often have common themes. We qualitatively analyzed 76 interviews conducted with individuals who completed their doctoral degrees.

The results rendered four primary themes related to their persistence: (a) personal attributes, (b) social integration into the university, (c) program structure, and (d) program resources and services (Rockinson-Szapkiw & Spaulding, under review). These themes, previous research on implications from doctoral persistence, and community research, provide strategies to administrators and educators on ways to increase community (e.g. social presence, cognitive presence, and teaching presence) and, thus, persistence in their own doctoral programs:

Social Presence
1. Leverage technology for social and interdisciplinary interaction with a focused purpose; thus, increasing students' sense of connectedness with each other (Brandes, 2006). Web 2.0 and social networking technologies (e.g., wikis, Facebook, LinkedIn, and Ning) can be used to create forums for doctoral students to interact with peers and faculty both socially and academically will be demonstrated.
2. Adopt a cohort model. Cohorts have been shown to support community and assist with developing safe environments for critical reflection (Norris & Barnett, 1994).

Teaching Presence
3. Communicate on a regular basis and provide timely feedback that is personable and challenges doctoral students academically. When faculty communicate concern for doctoral candidates and challenge them with their feedback, candidates are likely to feel satisfied and persist (Lee, 2010). E-conferencing systems and audio feedback can be used to complete quick check ins and review manuscripts.

Cognitive Presence
4. Model critical thinking and reflective processes needed for scholarship. Construct frameworks (e.g., templates), encourage organization and summation techniques, and assist doctoral candidates in setting goals and developing timelines.
5. Identify and select learning activities for doctoral courses that are relevant and practical in nature. Adult learners are also more motivated to learn when information is relevant and of immediate value (Knowles, 1980). When course activities are planned, the following questions should be asked: (a) How is this related to preparing students for the comprehensive exam? (b) How does this activity develop the research, writing, and analytic skills necessary for conducting a dissertation?

Conclusion

Fostering community in a doctoral program through practices is likely to lead to persistence. This presentation will assist faculty and administrators in identifying how they can encourage doctoral persistence and completion through practices that increase community.

References

Brandes, L. (2006). Graduate student centers: Building community and involving students. *New Directions for Student Services, 115*, 85-99.

Carr, S. (2000). As distance education comes of age, the challenge is keeping the students. *The Chronicle of Higher Education, 46*(23), A39-A41.

Galbraith, M. W. (2003). The adult education professor as mentor: A means to enhance teaching and learning. Perspectives: The New York .*Journal of Adult Learning, 1*(1), 9-20.

Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *American Journal of Distance Education, 15*(1), 1-24.

Holsinger, J. W. (2008), Situational leadership applied to the dissertation process. *Anatomical Sciences Education, 1*(5), 194–198.

Norris, C. J., & Barnett, B. (1994). Cultivating a new leadership paradigm: From cohorts to communities. Paper presented at the annual meeting of the Univ. Council of Educ. Admin., Philadelphia, PA, October 1994.

Rockinson-Szapkiw, A. J., & Spaulding, L. S. (2011, under review). Factors that contribute to the successful completion of educational doctorates. *The Review of Higher Education.*

Seagram, B., Gould, J., & Pyke, S. (1998) An investigation of gender and other variables on time to completion of doctoral degrees. *Research in Higher Education 39* (3), 319–335.

Smallwood, S. (2004). Doctor dropout. *The Chronicle of Higher Education, 50*(2) 120-129.

Terrell, S. R., Snyder, M. M., & Dringus, L. P. (2009). The development, validation, and application of the Doctoral Student Connectedness Scale. *Higher Education and the Internet, 12*(2), 112-116.

Strategies for Integrating Mobile Learning for Student Engagement

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Abstract: Mobile devices such as cell phones, tablets, iPods, e-readers, and even laptop computers can increase comprehension and learning. This workshop will focus on the value of mobile learning both in and out of the classroom. This practice session will demonstrate and explore mobile learning strategies in the classroom to create backchannel conversations and to solicit live student responses, which can provide immediate feedback and formative assessment. Out of the classroom, the use of mobile devices can extend learning by using mobile tools, such as object tagging and social mobile games, for students to construct their own mobile content together with community partners within a service-learning experience.

Literature Review

Of the six "technologies to watch" included in the latest *Horizon Report* (Johnson, Smith, Willis, Levine, & Haywood, 2011), half relate directly to mobile learning and games: mobiles, augmented reality, and game-based learning. Instead of instructors mandating that mobile phones be "silenced" in higher education classrooms, mobiles can be effectively be utilized in backchannel communication, defined as a "secondary electronic conversation that takes place at the same time as a conference session, lecture, or instructor-led learning activity" (EDUCAUSE, 2010, p. 1). Instructors can leverage the background conversations to encourage all students, including the quiet ones, to participate in the conversation, as well as to create a list of questions and items for further review at the end of a presentation or topic of discussion.

Outside of the classrooms, constructing mobile learning games has been found to be as beneficial as the act of playing. Constructionist learning theory holds that learning is most effective when students are engaged in making or constructing objects and artifacts (Harel & Papert, 1991). Yasmin Kafai discusses two perspectives related to educational games: instructionists, who focus on the design of games for the purpose of instruction, and constructionists, who believe in providing opportunities for students to construct knowledge through the making of games. She points out that "fewer people have sought to turn the tables: by making games for learning instead of playing games for learning" (Kafai, 2006).

Service-learning is an experiential learning strategy that seeks to integrate classroom instruction with community service (ETR Associates, 2011). This model encourages students to apply what they learn in the classroom to address issues in their community, and to further their learning through reflection on the service component. Service-learning experiences are expected to benefit both the student and the community, whereby students have the opportunity to develop and apply academic skills, enhance personal growth, and sense of civic and social responsibility. The community benefits from the volunteer work that the students provide, to enhance the overall quality of life.

Service-learning and constructionism share Dewey's (1925) belief that learning is brought about through the interaction of knowledge and skills with experience. They are, therefore, complimentary models to engage students in discovering knowledge firsthand. Studies on student groups collaborating with community partners in a service-learning experience to construct mobile learning games has been found to increase students' interest in community service and elicit positive student reactions to different types of collaboration (Wallace, 2009; Wallace, 2011).

Objectives for the Practice Session

Upon completion of this session, participants will be able to:
- Differentiate between strategies for using mobile learning in and out of the classroom,
- Identify at least one mobile learning tool that could be used for formative assessment in the classroom, and
- Identify at least one mobile tool that could be used for learning outside of the classroom.

Description of the Practice to be Modeled

This practice session will first demonstrate several tools and strategies for integrating mobile learning strategies into the high education classroom to engage learners in backchannel conversations, and to solicit live student responses, which can provide immediate feedback and formative assessment. Participants will view demonstrations of popular software tools that are available for mobile phones and tablet devices, have an opportunity to try several tools within a hands-on session, and engage in discussions about the use of the backchannel and formative assessment in the classroom.

In addition, the presenter will summarize a study (Wallace, 2011) providing an overview and assessment of a service-learning project that involved student groups collaborating with a community partner to develop mobile games related to aspects of local wetlands education. The key points drawn from this study include:
- Mobile learning game development can be integrated into university courses, to build on the concepts behind constructionist pedagogy and service-learning,
- Students constructing mobile learning games can partner with community and faculty experts, and
- The project increased students' interest in community service, and prompted a strong positive reaction to various types of collaboration.

Participants in this practice session will be introduced to three mobile game platforms that can be used in the design and construction of place-based mobile games. These three were selected as they are widely available on common mobile hardware platforms and are easy to use, from both the user (player) and developer perspectives: (1) object tagging with QR Codes, (2) social scavenger hunts with SCVNGR, and (3) the Wikitude augmented reality browser. The session will conclude with a discussion of technical considerations and challenges, as well as ideas to implement the instructional models of community-based mobile learning games within a variety of courses and disciplines.

References

Dewey, J. (1925). *Experience and Nature*. Chicago, IL: Open Court.
EDUCAUSE. (2010, February). *7 Things You Should Know About Backchannel Communication*. Retrieved from EDUCAUSE Learning Initiative website: http://net.educause.edu/ir/library/pdf/ELI7057.pdf
ETR Associates. (2011). What is service-learning? Retrieved from http://www.servicelearning.org/what-service-learning
Harel, I., & Papert, S. (1991). *Constructionism*. New York: Ablex Publishing Corp.
Johnson, L., Smith, R., Willis, H., Levine, A., & Haywood, K. (2009). *The 2011 Horizon Report*. Retrieved from http://wp.nmc.org/horizon2011/
Kafai, Y. B. (2006). Playing and making games for learning. *Games and Culture*, 1(1), 36-40. doi:10.1177/1555412005281767
Wallace, P. (2009). Development of a place-based mobile game for groundwater education. *Proceedings from SITE 2009: Society for Information Technology & Teacher Education International Conference*, 2009(1), 3866-3871.
Wallace, P. (2011). Student-community collaboration to construct mobile learning games. *EDUCAUSE Quarterly*, 34(3), Retrieved from http://www.educause.edu/library/EQM1130

Student Engagement Through Book Clubs: Lessons Learned

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Abstract: In 2010, the first author of this paper presented a session on the value of incorporating non-textbook readings into college courses. Two years later, this paper explores an in-depth strategy for doing so, which both authors have successfully implemented to enhance student engagement across a variety of courses. The strategy is the use of student book clubs to promote critical analysis of readings. Here, we survey their utility and implementation strategies, noting also their advantages and limitations. Lessons learned and practical tips for success gained from experience with this technique will also be addressed. This interactive session will challenge faculty to examine the feasibility of, and strategies for, incorporating book club assignments into their pedagogical arsenal for student engagement.

Literature Review

In his book, *What the Best College Teachers Do*, Ken Bain (2004) described how his study of effective instructors found a commonality in how they utilize assigned readings: "They don't *discuss* readings with students; they get them *involved* in thinking about issues, taking positions, and drawing from their readings to make arguments and solve problems [emphasis added]" (pp. 88-89). Such an approach could help provide the antidote to Eble's (1990) observation that required readings "done under duress" (p. 130) may inhibit the development of personal or professional reading habits. Too often, readings in a course are restricted to textbooks. Textbooks have their place in providing students with a starting point for the study of a field (McKeachie, 1999). However, readings beyond textbooks can promote the engagement that Bain suggests is necessary to enhance the value of reading for students.

Over 40 years ago, Jervey (1969) noted that "The students today are demanding teachers who encourage them to doubt, to question, to explore, to create" (p. 61). This is even truer today. Millennial learners are "team-oriented" (Howe & Strauss, 2007, p. 121), demanding engagement and willing to pursue high standards. Similarly, students in the "net generation" value collaborative pedagogies that move beyond lectures (and perhaps, by analogy, beyond textbooks as the sole reading materials) and toward empowering students to discover knowledge through application (Tapscott, 2009). Indeed, a study of seniors at Harvard University (Light, 2001) found that they highly valued opportunities to learn collaboratively from each other, including through study groups.

The ideas expressed above, about engagement through reading and collaborative learning, find their nexus in the pedagogical practice of assigning student reading groups in class. Perhaps drawing upon reader-response theories of literary criticism, reading groups can require students to consider their individual reactions to a work (incorporating and/or applying substantive content from the course), and then to "evolve that response based on interaction with a community…or the employment of a particular…theory" (Lynn, 1998, p. 47). Further, Erickson and Strommer (1991) identified writing about reading as one of the best ways to promote understanding, noting that "Research supports the practice of writing as an adjunct to reading" (p. 124). Given the lack of reading, overall, among college students (Owen, 2010), it is noteworthy to pay heed to Graff's (2003) observation that "At a time when the public conversation about books has become attenuated, people feel a special need to share their reading experiences with others" (p. 110).

Goals and Objectives for the Practice Session

The goal of the practice session is to present the authors' experiences, and lessons learned, with the use of book clubs as a major class project intended to (1) enhance engagement with course material, (2) promote critical reading and critical thinking, and (3) enhance students' teamwork and communication skills. Both authors are social scientists, but the book club model has the potential to apply across disciplines.

The session will be interactive. After a presentation surveying the literature and describing the practice, participants will be challenged to consider how they might implement a book club, connect it to course material, select the appropriate readings, structure the appropriate assignments, and evaluate student groups. Through collaborative exercises, participants will have the opportunity to develop a book club assignment during the session.

Description of the Practice

In the book club assignment, students select or are assigned books (generally works of popular nonfiction, or occasionally fiction) that are related to the substantive content of the course. Students work in groups to process their book, establishing regular meeting times during the semester at which sections of the book will be discussed. Prior to each meeting, students must prepare a reflective journal summarizing the section of the book they have just completed, and bring an analysis to it (e.g., considering what they found most interesting, how it relates to class material, what lessons they learned, what they would have done differently from actors in the book, and so on). In addition, students prepare discussion questions (described to them as questions that require critical thought and which cannot be answered by turning to a page in the book). These items are circulated to all group members in advance of the meeting. When the group meets, they discuss the journal entries and the questions, and then work collaboratively as a group to prepare a written answer to a question posed by the instructor pertinent to the chapters that were read. At the end of the semester, each group must prepare a presentation to the class and a scholarly paper synthesizing the book and offering recommendations, insights, etc., integrating the book with the topic of the class.

The authors have regularly used the book club assignment for several years, in classes from the sophomore to senior level. Over that time, we have made incremental modifications to the assignment based on lessons learned. We will share those lessons, including what types of books work (or don't work) for the assignment, how to best structure the assignment to promote the most effective reflection upon and analysis of the readings, how to best integrate the assignment with course content to help students see relevance, how to effectively evaluate group members, and more. We will also provide a discussion of the benefits of the assignment and a realistic accounting of its drawbacks and remedies to them (including issues related to time management for students and faculty, group dynamics, maintaining student interest, and ensuring that the assignment matches well to course content).

Discussion

The book club assignment has resulted in an increased student satisfaction with course readings and an enhanced engagement with course material. It has, rewardingly, also resulted in comments from students such as "This is the first book I have enjoyed reading in years" and in what appears to be a genuine interest in reading as manifested by students sharing their assigned books with one another. When such positive results are coupled with an enhanced understanding of, and appreciation for, both theoretical aspects and practical applications of course content, the benefits of the book club assignment surely pay dividends to students' intellectual development.

References

Bain, K. (2004). *What the best college teachers do*. Cambridge, MA: Harvard University Press.

Eble, K. E. (1990). *The craft of teaching* (2nd ed.). San Francisco, CA: Jossey-Bass.

Erickson, B. L., & Strommer, D. W. (1991). *Teaching college freshmen*. San Francisco, CA: Jossey-Bass.

Graff, G. (2003). *Clueless in academe: How schooling obscures the life of the mind*. New Haven, CT: Yale University Press.

Howe, N., & Strauss, W. (2007). *Millennials go to college*. Great Falls, VA: LifeCourse Associates.

Jervey, E. D. (1969). *The three-way street*. New York, NY: Vantage Press.

Light, R. J. (2001). *Making the most of college: Students speak their minds*: Cambridge, MA: Harvard University Press.

Lynn, S. (1998). *Texts and contexts: Writing about literature with critical theory*. New York, NY: Longman.

McKeachie, W. J. (1999). *McKeachie's teaching tips: Strategies, research, and theory for college and university teachers*. Boston, MA: Houghton Mifflin Company.

Owen, S. (2010). *Beyond textbooks: Reading and collaborative learning*. In Proceedings of the 2010 Conference on Higher Education Pedagogy (pp. 40-41). Blacksburg, VA: CIDER.

Tapscott, D. (2009). *Grown up digital: How the net generation is changing your world*. New York, NY: McGraw Hill.

Student-Led Classes as a Technique for Teaching and Assessing Foreign Languages

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Abstract: This practice session will discuss the use of student-led teaching as a technique for increasing student engagement and assessing student progress in a foreign language course that focuses on oral proficiency. Oral fluency is a critical component of foreign language competence, but often receives little attention in classroom instruction. This means that instructors of conversation courses have comparatively few resources for teaching and assessing oral skills. I will begin with my reasons for using student-led classes instead of more traditional assessment techniques such as essays, interviews, and presentations. I will then describe the results of my experiments with student-led teaching in a third-year Russian conversation course, including both the benefits and the potential pitfalls. In the second half of the session the participants will take on the role of students and break out into small groups that will propose potential lesson plans. We will conclude with a short peer-led discussion of these lesson plans and their suitability for students working in a foreign language.

Literature Review

The benefits of student-led teaching, which promotes student engagement and autonomy along with the acquisition of course content, are well known (e.g., Sturdivant & Souhan, 2011). However, a survey of the recent literature on the topic suggests that, while student-led exercises and teaching are sometimes used in math and science courses (e.g., Gasser, 2011; Lamanna & Eason, 2011; Bruck & Towns, 2009; Lord et al., 2007) or in honors or advanced seminars (Vassilliou, 2008; Casteel & Bridges, 2007), this is not a common technique for foreign language instruction. My search of education journals, in fact, turned up no articles on this subject, and as a veteran language-learner myself I can attest that giving students control of the classroom is not a widespread practice, as I am the only language instructor I have ever encountered to do so. Not only does student-led teaching seem to be little-used in the foreign language classroom, but conversation-based assessment techniques in general are uncommon, for "[m]any classroom teachers feel that oral exams are among the most difficult types of exams to create, schedule, administer, and grade, especially when they have large classes or many classes in the course of a day. For these reasons, some classroom teachers consider oral tests impractical and do not attempt to test oral skills in any regular or consistent fashion" (Hadley, 2001). When I began teaching a third-year Russian conversation course I was faced with precisely the problem that testing oral skills is difficult and there are few resources or assessment techniques available for the instructor of a class focused entirely on increasing oral proficiency. The usual practice in first- and second-year classes of interviews or dialogues seemed inadequate for the more advanced level of third-year students, and so I turned to my experience teaching a First Year Seminar (Krometis et al., 2011) and decided to find out if student-led classes would be equally effective in a language learning setting. I have found that it significantly increases student engagement and satisfaction, while promoting active language learning and critical thinking about the process of knowledge acquisition.

Goals and Objectives

This session has three main objectives: (1) to introduce the concept of student-led teaching in a foreign language classroom, (2) to provide participants with insights from my own use of this technique, and (3) to give participants the opportunity to experience being a student charged with the task of designing a class in and about a foreign language. Participants will be encouraged to create lesson ideas drawn from authentic materials rather than textbooks, while considering the limitations imposed on creativity by a limited knowledge of the target language.

Description

I will begin the practice session with a description of my own teaching philosophy and my experiences as both a student and a teacher that caused me to decide to use student-led classes as a final project and assessment tool for my advanced Russian conversation students. I will then give an overview of the multi-week process I use to prepare students to design and lead a class in a foreign language, and show some sample grading rubrics I have used for assessing student-led classes. We will conclude with the same kind of small group exercises I use during an actual class. As students are often nervous about their teaching as well as their language abilities, and as this project is a

significant portion of their final grade, I walk them through the basics of lesson planning and material selection, and require them to participate in several brainstorming and peer review sessions, as well as individual meetings with me, before they teach the class. Although our target language in this practice session will be English, the participants will model the brainstorming and peer review exercises and engage in the same sort of critical thinking about language acquisition as students in my conversation class.

Discussion

Foreign language proficiency involves both theoretical knowledge of a subject and the ability to perform a difficult skill in high-stress situations. In designing courses, classes, and assessments of a foreign language, instructors must therefore ask themselves what they are doing to foster both of these aspects of foreign language development. Given that oral proficiency in particular demands a high level of quick thinking and self-confidence, when is it appropriate to emphasize the theoretical rules of "correct" language, and when is it appropriate to emphasize confidence and fluency, even at the expense of "correct" language? Do the potential benefits of increased student engagement and self-reliance outweigh the potential risk of students, in their role as peer teachers, infecting the rest of the class with their mistakes? Students often complain of feeling intimidated when asked to lead class—is this a serious problem, and how can it be dealt with? How can instructors provide supportive guidance for inexperienced and nervous—or over-confident and careless—students without negating the benefits of the exercise by being over-controlling or heavy-handed? How can instructors keep the class focused on language acquisition while allowing students to be creative and explore their own interests? How can the instructor grade the student-led classes if this is being used as an assessment technique, and is it even possible to make such an assessment technique "fair" in the same way that a paper-and-pencil test is "fair"?

References

Bruck, L. B., & Towns, M. H. (2009). Preparing students to benefit from inquiry-based activities in the chemistry laboratory: Guidelines and suggestions. *Journal of Chemical Education, 86*(7), 820-822.

Casteel, M. A., & Bridges, K. R. (2007). Goodbye lecture: A student-led seminar approach for teaching upper division courses. *Teaching of Psychology, 34*(2), 107-110.

Gasser, K. W. (2011). Five ideas for 21st century math classrooms. *American Secondary Education, 39*(3), 108-116.

Hadley, A. O., 1947-. (2001). *Teaching language in context*. Boston: Heinle & Heinle.

Krometis, L. H., Clark, E. P., Gonzalez, V., & Leslie, M. E. (2011). The 'death' of disciplines: Development of a team-taught course to provide an interdisciplinary perspective for first-year students. *College Teaching, 59*(2), 73-78.

Lamanna, J. R., & Eason, P. K. (2011). Building creative scientists in the classroom laboratory: Applications for animal behavior experiments. *The American Biology Teacher, 73*(4), 228-231.

Lord, T., Shelly, C., & Zimmerman, R. (2007). Putting inquiry teaching to the test: Enhancing learning in college botany. *Journal of College Science Teaching, 36*(7), 62-65.

Sturdivant, R. X., & Souhan, B. E. (2011). Peer-to-peer teaching using multi-disciplinary applications as topics. *Primus, 21*(3), 283-293.

Vassiliou, L. (2008). Learning by leading and leading by teaching: A student-led honors seminar. *Honors inPractice, 4*, 111-118.

Students Helping Students: Improving Performance Through Peer Leaders

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Abstract: During the past ten years, there has been a proliferation of peer education programs in nearly every academic unit available in higher education (Newton, Ender, & Gardner, 2010). This practice session highlights the role of undergraduate peer leaders to facilitate group and individual learning among first-semester students in Virginia Tech's College of Agriculture and Life Sciences. The students can be thought of as mentors, but they are referred to as peer leaders because of the role they took in leading small groups within the class. The peer leaders were assigned two or three groups of five to eight students each, so each peer leader was responsible for approximately 15 students. The instructions for the peer leaders included two overarching responsibilities: (1) Welcome, orient, and mentor first-year students as they transition to life at Virginia Tech, and (2) Assist student groups with managing their assignments for the first-year-experience course. Beginning from the faculty members' experiences, this interactive practice session will explore opportunities to supplement undergraduate instruction with peer leaders and also explore the educational needs of students who serve as undergraduate peer leaders. As one of the peer leaders aptly stated, "I can say that this exercise was a learning experience for all of us."

Literature Review

Mentoring is ''a formalized process whereby a more knowledgeable and experienced person actuates a supportive role of overseeing and encouraging reflection and learning within a less experienced and knowledgeable person, so as to facilitate that persons' career and personal development'' (Roberts, 2000, p. 162). The word ''mentor'' comes from Greek methodology. In the Odyssey, the main character, Odysseus, invites his friend, Mentor, to help him prepare to fight in the Trojan War, and Mentor serves as a trusted advisor who guides Odysseus's development (Miller, 2002). In the same way, higher education students can benefit from a mentor as they face the challenges of college life (Crisp & Cruz, 2009).

Peer mentoring can have a tremendous impact on the academic success and persistence of college students. For example, in a recent study with Latino college freshmen, researchers found that those partnered with upper division or graduate students showed improvement in psychosocial factors that underlie academic performance and were less likely than unmentored students be classified as at risk for poor academic outcomes (Phinney, Torres Campos, Padilla Kallemeyn, & Kim, 2011). Similarly, in a study of peer-led team learning in general chemistry, researchers found that students who participated in Peer-Led Team Learning (PLTL) outperformed non-PLTL students on every academic outcome with the exception of the mid-term grade (Hockings, DeAngelis, & Frey, 2008). In an extensive review of literature on mentoring college students, Crisp and Cruz (2009) found only two studies that failed to find entirely positive results, but even those found a significant effect on higher grades (Rodger & Tremblay, 2003) and satisfaction with college (Strayhorn & Terrell, 2007). Recent efforts to enhance peer mentoring in higher education has sought to expand the role of the peer mentors and support them through workshops or directed courses (Heirdsfield, Walker, Walsh, & Wilss, 2008; Smith, 2008)

Goals and Objectives for the Practice Session

Participants who complete this practice session will be able to:
- Outline appropriate opportunities to supplement undergraduate instruction with peer mentoring,
- Describe the educational needs of students who serve as undergraduate peer leaders, and
- Identify resources available for supporting undergraduate peer leaders.

Description of the Practice

During 2011, Virginia Tech's College of Agriculture and Life Sciences embarked on a new first-year-experience course (ALS 2984) and incorporated peer leaders as an integral part of the course. As part of the ALS 2984 course, the first-year-experience students were divided into groups of five to eight students each, and each group was

assigned a peer leader, a returning student (sophomore, junior, or senior), to help guide their efforts. The peer leaders were assigned two or three groups each and were told that they had two overarching responsibilities: (1) Welcome, orient, and mentor first-year students as they transition to life at Virginia Tech, and (2) Assist student groups with managing their assignments for ALS 2984: CALS First Year Seminar. The peer leaders were all volunteers but did earn academic credit from a one-credit seminar course, LDRS 2984, designed specifically for them. The textbook that guided the peer leaders' seminar course was *Students Helping Students: A Guide for Peer Educators on College Campuses* (2nd edition) by Newton and Ender (2010). As part of LDRS 2984, the peer leaders collectively led a class session on academic success for the ALS 2984 course, maintained regular communication with their assigned students, and documented their reflections on the experience in the form of a weekly blog.

Discussion

The lessons learned to date are best represented in comments from the peer leaders' blog:

- "I definitely felt like the students gained a lot of perspective on how college life is. When we were presenting, I felt like maybe some of the students seemed a bit uninterested and slightly confused as to why the peer leaders were holding a presentation about this. However, after going through the questions that the students from my group put up, I felt like we made a pretty solid presentation. Some of the stuff we were presenting on seems obvious but I forgot what it is like to be a freshman. Some of the stuff we know being here for 3-4 years is not as apparent to freshman students."
- "I can say that this exercise was a learning experience for all of us."
- "For next year's peer leaders, I think the planning process needs to start much sooner… There is a lot involved by being a peer leader and it's hard to discuss that in a one hour block right in the middle of the actual freshmen class."
- "I believe now that we have gone through this once, there is a better understanding of what is expected of the peer leaders so they know exactly what they are getting into before they decide to be a Peer Leader."

As part of a brain-storming exercise, participants in the practice session will be invited to share their experiences and/or questions about the role of peer leaders or mentors in undergraduate learning experiences.

References

Crisp, G., & Cruz, I. (2009). Mentoring college students: A critical review of the literature between 1990 and 2007. *Research in Higher Education, 50*(6), 525-545. doi: 10.1007/s11162-009-9130-2

Heirdsfield, A. M., Walker, S., Walsh, K., & Wilss, L. (2008). Peer mentoring for first-year teacher education students: The mentors' experience. *Mentoring & Tutoring: Partnership in Learning, 16*(2), 109-124. doi: 10.1080/13611260801916135

Hockings, S. C., DeAngelis, K. J., & Frey, R. F. (2008). Peer-led team learning in general Chemistry: Implementation and evaluation. *Journal of Chemical Education, 85*(7), 990. doi: 10.1021/ed085p990

Miller, A. (2002). *Mentoring students & young people: A handbook of effective practice*. London: Kogan Page.

Newton, F. B., Ender, S. C., & Gardner, J. N. (2010). *Students helping students: A guide for peer educators on college campuses*. San Francisco, CA: Jossey-Bass.

Phinney, J. S., Torres Campos, C. M., Padilla Kallemeyn, D. M., & Kim, C. (2011). Processes and outcomes of a mentoring program for Latino college freshmen. *Journal of Social Issues, 67*(3), 599-621. doi: 10.1111/j.1540-4560.2011.01716.x

Roberts, A. (2000). Mentoring revisited: A phenomenological reading of the literature. *Mentoring & Tutoring: Partnership in Learning, 8*(2), 145-170. doi: 10.1080/713685524

Rodger, S., & Tremblay, P. F. (2003). The effects of a peer mentoring program on academic success among first year university students. *Canadian Journal of Higher Education, 33*(3), 1-17.

Smith, T. (2008). Integrating undergraduate peer mentors into liberal arts courses: A pilot study. *Innovative Higher Education, 33*(1), 49-63. doi: 10.1007/s10755-007-9064-6

Strayhorn, T. L., & Terrell, M. C. (2007). Mentoring and satisfaction with college for Black students. *The Negro Educational Review, 58*(1-2), 69-83.

Supporting the Expert Student

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Abstract: The authors have been conducting research into the knowledge structures exchanged between students and teachers in various higher education settings through the qualitative application of concept mapping. This has enabled the development of a generic model of professional practice that considers the nature of the knowledge structures that compose expertise. The authors are now engaged in the translation of this research to the development of curriculum materials that can be used by university academics to reconsider their teaching in terms of complementary experiential and conceptual knowledge structures. In this way classroom practices can be developed to better mirror the cognitive activities that are indicative of expert academic practice/research.

Literature Review

The movement between linear/experiential and hierarchical/conceptual knowledge structures has been described as *the* fundamental issue in education (Novak and Symington, 1982). The corresponding learning orientations that generate these knowledge structures (segmented learning supporting experiential understanding and cumulative learning supporting conceptual understanding) have been identified by Maton (2009) as a focus for the development of curriculum structures that support this movement: formalized as a dual-processing model of professional expertise by Kinchin and Cabot (2010). The ability to manipulate and transform knowledge representations within a domain has been described by Mislevy (2010) as being 'inseparable from becoming an expert in that domain', whilst Tsui (2009) has explained how expert teachers model these transformations in their classroom practice. However, the literature on this issue has been very research-oriented and teacher-centered. To develop a more practice-based view, we suggest that the role of the student needs to be reconsidered in terms of knowledge transformations (Kinchin, Lygo-Baker et al. 2008) so that the *expert student* is recognized as 'one who recognizes the existence and complementary purposes of different knowledge structures, and seeks to integrate them in the application of practice' (Kinchin, 2011). This process is summarized in Figure 1.
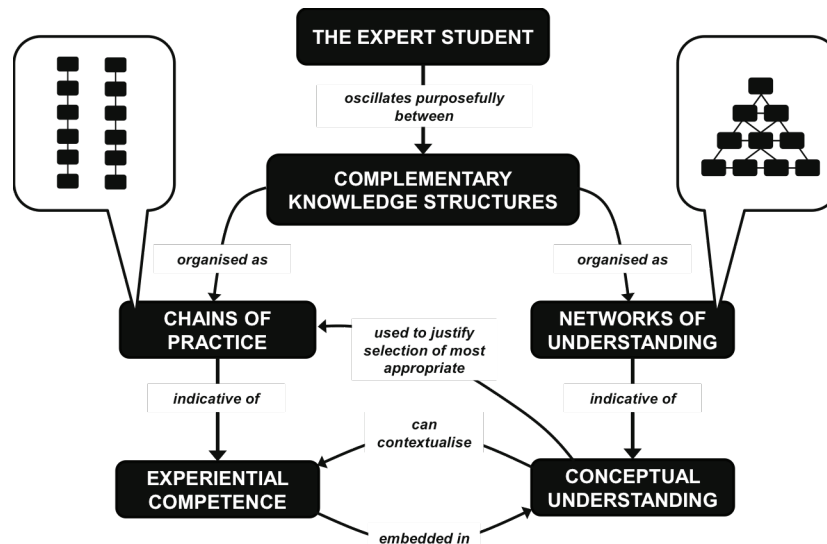

Figure 1. The expert student model (modified from Kinchin and Cabot, 2010)

Objectives

Upon completion of the session, participants will be able to:
- Consider their own discipline in terms of complementary chains of practice and networks of understanding,
- Reflect upon their curricula in terms of opportunities for cumulative and segmented learning, and
- Apply the model to their own teaching context for the promotion of student expertise.

Description of the Practice to be Modeled

Participants will be provided with practical opportunities to engage with the model described above and will be guided in its application towards classroom strategies that they can employ. The consideration of the curriculum as dynamic and complementary knowledge structures (rather than as a single fixed structure) is a transformative process. The presenters will support participants through a consideration of their own teaching in which practice can be adjusted to facilitate the dual processing of linear and hierarchical knowledge structures.

Whilst the terminology presented may be new to many of the participants, the issues addressed will be familiar to all who have been teaching in higher education for any time. Where teaching has resulted in the accumulation of facts by students without any parallel development in understanding, the authors have described this as non-learning (Kinchin, Lygo-Baker et al, 2008). The presentation will offer some practical solutions to this problem by illustrating minor changes to existing practice that can have a major effect upon student engagement and upon the subsequent quality of learning. For example, application of the model to the more effective use of PowerPoint in teaching; the more effective use of handouts to complement rather than repeat lectures; the development of more explanatory curriculum documentation, and the explicit linking of theory with practice (e.g. laboratory or clinical teaching with lecturing) will be demonstrated. Participants will then be furnished with practical tools that will allow them to continue to develop their own materials that will contribute to their teaching – and their students' learning.

Discussion

This presentation is based on six years of collaborative research between the two presenters who are both experienced teachers and who are involved in the professional development of faculty members in their home institution. The work described here provides university teachers with appropriate tools and vocabulary they need in order to address issues of student learning quality in ways that are not only manageable, but are also compatible and complementary to their own learning and disciplinary research practices.

Acknowledgement

References

Kinchin, I. M. (2011). Visualizing knowledge structures in biology: discipline, curriculum and student understanding. *Journal of Biological Education*, *45*, 176 - 182

Kinchin, I. M. & Cabot, L. B. (2010). Reconsidering the dimensions of expertise: from linear stages towards dual processing. *London Review of Education, 8*, 153 – 166.

Kinchin, I. M., Lygo-Baker. S., et al. (2008). Universities as centres of non-learning. *Studies in Higher Education*, *33*, 89 – 103.

Maton, K. (2009). Cumulative and segmented learning: exploring the role of curriculum structures in knowledge building. *British Journal of Sociology of Education, 31*, 43 – 57.

Mislevy, R. J. (2010). Some implications of expertise research for educational assessment. *Research Papers in Education, 25*, 253 – 270.

Novak, J. D. & Symington, D. J. (1982). Concept mapping for curriculum development. *Victoria Institute for Educational Research Bulletin, 48*, 3 -11.

Tsui, A. B. M. (2009). Distinctive qualities of expert teachers. *Teachers and Teaching: Theory and practice, 15*, 421 – 439.

Teacher Who Inspire Revisted

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Abstract: Back after a standing-room-only crowd last year, this practice session will teach you more about how to get your students to quit texting, Facebooking, and checking email during your class. Come participate in activities and learn new techniques to improve critical thinking skills that you can adapt immediately to your classroom. Learn to motivate students without sacrificing academic standards, and get inspired so that you can inspire your students to look forward to coming to class. If you missed this session last year, you will not want to miss it again. If you were there, join us again to learn a few new innovative strategies and more inspiration.

Literature Review

College students are changing and the traditional teaching methods of the past are now refutable by the contemporary student population, (Johnson, et al, 2006; Zmuda, 2008.) Long lectures, strict discipline and authoritative attitudes no longer work. According to Robertson, Yun, and Murray, (2009) innovation is essential, methods other than traditional methods can improve the quality of teaching and learning in higher education, (Deignan, 2009, Gomleksiz, 2007, Pedro, 2005) and faculty are critical in student success (Levin, Cox, Cerven, Haberler, 2010.) Johnson, et al, (2006) purport several activities as current requirements in the classroom. These include faculty working together with their students to develop competencies, facilitating the construction of their own knowledge, and cooperatively interacting to maximize learning. Creating a culture of warmth and support builds trust in the learning community and not only influences student achievement, but can also contribute to improvement in attendance and tardiness and, in one case, the complete transformation of a failing school (Cianca and Lampe, 2010.)

Teachers who inspire care about their students enough to invest time in learning. They do more than facilitate an increase in knowledge in students ((Van der Zee and de Jong, 2009.) Today's trends include writing across the curriculum and challenging students to become better critical thinkers (Ruggiero, 2009.). It takes work to stimulate thinking with some students, and for those who feel disconnected, success is difficult. Teachers who inspire listen, get to know their students, connect with them (Glasser, 2000.) They learn how to challenge and motivate them, (Zmuda, 2008) and they design innovative assignments and projects that facilitate critical thinking. When teachers are genuine, have high moral standards, and serve as remarkable role models, they instill in students a degree of social virtue (Van der Zee and de Jong, 2009.) Teachers who inspire get excited when their students succeed and care enough to search for innovative ways to make up for the deficiencies of traditional teaching methods, (Wang, 2010.) Teachers who inspire scrutinize active learning techniques, and recognize the need to provide the messiness of engagement and the time for discovery, (Johnson, et al 2006; Zmuda, 2008.)

Teachers who inspire never stop learning from their students and consistently create innovative, non-traditional teaching strategies that won't sacrifice academic standards and will result in student achievement, success, and satisfaction, (Cianca and Lampe, 2010.)

Goals and Objectives for the Practice Session

As at result of this session, participants will be able to:
- Identify innovative, non-traditional teaching methods that work to improve retention,
- Witness strategies that students find satisfying and inspire them to work toward success,
- Observe demonstrations of strategies that can be used immediately to build relationships, connect with students, and get them to look forward to coming to class and participating in activities, and
- Develop creative, innovative course activities, discussions and blogs, and other projects and assignments that don't sacrifice academic standards and promote critical thinking.

Description of the Practice to be Modeled

Participants who attend this session will observe demonstrations of strategies that build relationships, connect with students, and get students to come to class. Participants will be encouraged to actively participate in class activities

that they will be able to adapt to their own classes to motivate and engage their own students. They will witness creative, innovative assignments that emphasize writing across the curriculum and teach critical thinking skills.

Discussion

This presentation is based on The Essential "E" Strategy that was developed over 20+ years of dealing with a diverse population of traditional, non-traditional, classroom and online students. It entails EDUCATION about diversity, the use of clear and specific course EXPECTATIONS, the use of good quality assignment instructions and EVALUATION checklists, a strong sense of EMPATHY for these unique students, holding and living by high moral standards and ETHICS, and ENTICING students as a teaching method.

References

Cianca, M, & Lampe, P. (2010, Sep) Restoring hope. *Principal Leadership*, 11, 50-55.

Deignan, T. (2009, Feb). Enquiry-based learning: Perspective on practice. *Teaching in Higher Education*, 14, 13-23.

Glasser, W. (2000). Every Student Can Succeed. Black Forest Press.

Gomleksiz, M.N., (2007, Oct) Effectiveness of cooperative learning (jigsaw II) method in teaching English as a foreign language to engineering students (Case of Firat University, Turkey). *European Journal of Engineering Education,* 32, 613-625.

Johnson, D.W., Johnson, R. & Smith, K. (2006). Active Learning: Cooperation In The College Classroom. Edina, MN: Interaction Book Company.

Levin, J., Cox, E., Cerven, C., & Haberler, Z. (2010, Jul). The recipe for promising practices in community colleges. *Community College Review*, 38, 32-90.

Van der Zee, T, & de Jong, A. (2009). Teachers as a source of inspiration in Catholic Schools. *Journal of Empirical Theology,* 22, 7-29

Pedro, F., (2005, Oct-Dec). Comparing Traditional and ICT-Enriched University Teaching Methods: Evidence from Two Empirical Studies. *Higher Education in Europe*, 30, 399-411.

Ruggiero. V.R. (2009.) Becoming a Critical Thinker. Wadsworth, Cengage Learning

Wang, Tsung Juang, (2010, Jan/Feb). Educational benefits of multimedia skills training. *TechTrends*, 54, 47-57.

Zmuda, A, (2008, Nov). Springing into Active Learning. *Educational Leadership*, 38-42.

Robertson, J.L., Yun, H.C., & Murray, C.K., (2009). Teaching of interdisciplinary and core curriculum topics using alternative strategies. *Military Medicine*, 174, 1132-1136.

Teaching Narrative Competence: Innovative Pedagogies for Empathy and Self-Care

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Abstract: The introduction of narrative into curriculum offers rich opportunities for students to practice advanced interpretive and communication skills, enhance their capacity for empathy, and develop essential self-care dispositions that protect against burnout. In this session, participants will consider the growing evidence base supporting the value of narrative experience in curriculum, especially in the training of caring professionals who will work with students, clients, and patients. This session will help teachers in all areas discover how to incorporate narrative practice in their own curriculum and develop the narrative competence of their students in the ways most appropriate to their disciplines.

Literature Review

Narrative competence has been theorized by Charon (2004) as "the set of skills required to recognize, absorb, interpret, and be moved by the stories one hears or reads" (p. 862). She also notes (2006) that the goal of reading short stories, poems, and other narratives with future caring professionals is "not to produce literary critics," but rather to equip them with the "readerly skills to follow a narrative thread," to "adopt multiple and contradictory points of view," and to "tolerate stories' ambiguity" (p. 194).

Teachers of students in the caring professions of teaching, nursing, and social work note that narrative competence contributes enormously to the development of the urgently-needed capacity for "judgment-based practice," especially the effective evaluation of evidence that requires judgment about what matters most and what needs to be done first (Benner, 2010; NCATE, 2010). Work with narrative has also been demonstrated to improve the empathy attitudes of caring professionals toward patients and clients (Clary, 2008), as well as enhance caregivers' development of habits that increase capacity for self-care and resilience to burnout (Kearney, Weininger, Vachon, Harrison, & Mount, 2009). It also exploits what Turner (1991) describes as literature's capacity to counteract the "dehumanizing" aspects of contemporary clinical practice - aspects that have been noted as troubling factors in the documented decline in caregivers' empathy toward patients early in their clinical experience (Hojat et al., 2009).

The documented benefits of work with narrative among caregivers have led to the development of models for facilitating literature groups among caregivers from diverse contexts (Bonebakker, 2003; Bonebakker & Sinclair, 2007). At our institution, we have built upon emerging evidence of the utility of interdisciplinary narrative work to reveal common ethical and professional concerns across disciplinary boundaries (Bard, 2009). We have developed a model for pedagogical intervention that maximizes the educative power of narrative experience in the teaching of any group of future caring professionals.

Goals and Objectives for the Practice Session

At the end of this session, participants will be able to
- Describe the research-based outcomes of narrative work in professional training,
- List the elements of bringing narrative into their curriculum,
- Reflect upon sites in their current teaching responsibilities where communication competence, empathy, and self-care might be profitably taught through the use of narrative, and
- Synthesize "next steps" that they might implement in their courses.

Description of the Practice to be Modeled

This practice session will ask all attendees to participate in a short narrative competence workshop, bookended by an introduction that gives research and practical context for the model and an inclusive brainstorming discussion to explore and synthesize its utility for the teaching responsibilities of all participants.

- *10 minutes* - Introduction and overview of research base for narrative work in higher education,
- 5 minutes - Introduction of group participants and their teaching responsibilities,
- *20 minutes* - Facilitated narrative workshop with all participants; Focus text: "September, The First Day of School," poem by Howard Nemerov,
- *10 minutes* - Group discussion of facilitated narrative workshop experience, brainstorm of transfer to participants' teaching practice,
- 5 *minutes* - Summation and written synthesis for transfer to practice.

Discussion

This session presents the outcomes of a Humanities Research Group funded by the Appalachian Humanities Program (College of Arts and Sciences, Appalachian State University) in 2010-2011 to support the development of pedagogical models for interdisciplinary narrative experience in professional education. While conceptualized to meet the professional training context of our institution (especially the training of teachers, nurses, and social workers), the principles underlying the model support broad application across undergraduate and graduate teaching in the humanities, natural sciences, and social and behavioral sciences, and ensure relevance and value to a broad range of higher education teachers.

References

Bard, J. M., Thomas, W., & Tovino, S. A. (2009). Three ways of looking at a health law and literature class. *Scholarly Works, Paper 75*.

Benner, P. E. (2010). *Educating nurses : a call for radical transformation* (1st ed.). San Francisco: Jossey-Bass.

Bonebakker, V. (2003). Literature & Medicine: Humanities at the Heart of Health Care: A Hospital-Based Reading and Discussion Program Developed by the Maine Humanities Council. *Academic Medicine, 78*(10), 963-967.

Bonebakker, V., & Sinclair, E. (2007). *A Guide to Organizing Humanities Reading & Discussion Groups for Health Care Professionals*. Maine Humanities Council.

Charon, R. (2004). Narrative and medicine. *N Engl J Med, 350*(9), 862-864.

Charon, R. (2006). The self-telling body. [Article]. *Narrative Inquiry, 16*(1), 191-200.

Clary, B. (2008). *Program Evaluation, Literature and Medicine Program, Final Report*. Retrieved from http://www.mainehumanities.org/programs/litandmed/documents/Lit-Med-Eval-Final-Report.pdf

Hojat, M., Vergare, M. J., Maxwell, K., Brainard, G., Herrine, S. K., Isenberg, G. A., . . . Gonnella, J. S. (2009). The devil is in the third year: A longitudinal study of erosion of empathy in medical school. *Academic Medicine, 84*(9), 1182-1191.

Kearney, M. K., Weininger, R. B., Vachon, M. L. S., Harrison, R. L., & Mount, B. M. (2009). Self-care of physicians caring for patients at the end of life. *JAMA : The Journal of the American Medical Association, 301*(11), 1155-1164.

NCATE (2010). Transforming Teacher Education Through Clinical Practice: A National Strategy to Prepare Effective Teachers. Washington DC.

Turner, M. (1991). Literature and social work: An exploration of how literature informs social work in a way social sciences cannot. *British Journal of Social Work, 21*(3), 229-243.

The Art of Self-Publishing: Pedagogical Implications and Royalty Sharing Opportunity

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Abstract: The traditional mode of academic publishing via discipline journals and dedicated publishing houses utilizing peer review and editors is under attack by the opportunity to self-publish and to do so in what is described as an enhanced ebook containing embedded video, audio, graphics and hyperlinks. Early signs of how to employ self-publishing as a pedagogical tool for honing student writing skills and linking these efforts to fund raising are beginning to appear. How does one go about producing an enhanced ebook so that it is accepted by a digital bookseller such as Apple's iBook bookstore? How can the opportunity for self-publishing to a worldwide audience enrich a writing intensive class by weaving together writing, video, audio and graphics skills? Teaching and learning centers can play a lead role in coordinating these efforts and share in the potential for royalties generated by the sale of enhanced ebooks. Other issues to be discussed include the future impact of self-publishing on university presses, publishing houses, editors and the traditional peer review process for publication as well as for promotion and tenure.

Literature Review

In April, 2011, it was reported by the Association of American Publishers (AAP) that ebook sales topped paperback books for the first time (Sporkin, 2011). University presses have begun to respond to this mode of publishing and are moving quickly to get ebooks into libraries for access by scholars but many are in need of technical resources to do so (Howard, 2011). The process of publishing ebooks has become more challenging with the introduction of enhanced ebooks which permit inclusion of video, audio and other multimedia elements such as graphics and hyperlinks embedded within the text of the ePub file (Apple iBookstore Team, 2011). Apple Computer with the introduction of the iPad was the first to enable ebooks to include video and also included VoiceOver, the screen-access software for readers who are visually impaired or blind. There are beginning signs that ebook self-publishing can be utilized as a pedagogical strategy to promote student writing as well as a way to raise funds for educational as well as for public causes. (Monette, 2011; Young, 2010; Moulton, 2009). This may indicate an emerging role for Teaching and Learning Centers to also provide support for self-publication by faculty and faculty-led student efforts closely aligned to pedagogy and defined learning outcomes in partnership with University presses as well as instructional and educational technology centers.

Goals and Objectives

Participants attending this session will be able to:
1. Define and describe what an enhanced ePub file is and explain how it can be produced,
2. List the software and steps used in the production of an enhanced ePub file,
3. Identify necessary elements described in digital bookseller's guidelines for an acceptable ePub file,
4. Evaluate the potential role of a Teaching and Learning Center in supporting faculty and student self-publishing efforts,
5. Judge the worth of collaborative efforts by Teaching and Learning Centers with University presses and/or departments such as marketing for producing and selling ebooks,
6. Analyze the potential for royalty sharing as a way to generate funds for Teaching and Learning Centers,
7. Evaluate the role of students assisting other students and faculty in their self-publishing efforts, and
8. Judge the value of self-published work for the promotion and tenure process.

Discussion

The presenter has authored and published two ebooks now listed in the Apple Bookstore. The first to be self-published was titled "3D Haiku & Tanka" and is listed as an enhanced ebook with video demonstrating in an interactive manner how writing in three dimensional space can be achieved with unexpected outcomes from the alignment of haiku or tanka with overlapping lines. A paper in the traditional journal mode was published several years ago in the peer reviewed English Journal describing how writing poetry in three dimensions could be utilized as a collaborative writing tool (see 3-D Haiku: A New Way to Teach a Traditional Form, Sanford Tweedie and Michael Kolitsky, The English Journal, Volume 91(3), pages 84 - 88, 2001). The second ebook is titled "Quantum

Connections" and utilizes a hypermedia genre to tie poetic lines to images and employs hyperlinks designed to enable the reading of a poem in a non-linear manner. Both ebooks were constructed as ePub files which met the standards described in the Apple publisher guidelines and a brief overview of the ebooks and their corresponding ePub filles will be shown to emphasize what is expected in the publication guidelines.

In addition to describing what works in the process of producing an ePub file, the presentation will also list the pitfalls experienced by the presenter in producing an ePub file which was accepted by the Apple bookstore review process. Other software options for the "easy" production of ePub files which the presenter found did not work well and misconceptions listed on public web sites and discussion boards will be presented to save time and effort for attendees wishing to self-publish themselves.

It is also important to include discussion on what self-publishing offers for Teaching and Learning Centers in their efforts to promote the use of technology for enriching the learning process. University and college budgets are shrinking and innovative ideas to fund teaching and learning efforts must be explored. For many years, I have followed the idea that students are our most renewable resource and usually, funding students to assist faculty in projects such as self-publishing is easy to justify since students learn while they are doing what they are being paid to do. These on-campus "internships" may be an ideal way for Teaching and Learning Centers to provide assistance to faculty and students wishing to self-publish their work. But, just because one can self-publish does not mean the world will beat a path to your book. What marketing strategies can be employed to target an audience receptive to purchasing a self-published ebook? One approach to answering this questions may be to employ students in marketing to assist students and faculty who wish to self-publish by designing and implementing a marketing strategy for the sale of ebooks. A Teaching and Learning Center can serve as a common meeting ground for this type of collaboration?

The issue of peer review appears central to self-published work being considered for promotion and tenure. The current practice of utilizing expert peer reviewers and editors for publishing books and scholarly articles would have to be broadened considerably to include public feedback for self-published work as now exists at social networking sites and online stores such as the iTunes bookstore, Etsy.com or Amazon.com. In the discussion portion of the presentation, attendees will have an opportunity to discuss if self-publishing may be more appropriate for some disciplines than others when it comes to the inclusion of self-published work in a tenure and promotion dossier.

<div align="center">References</div>

Sporkin, A. (2011). E-Books Rank as #1 Format among All Trade Categories for the Month, Association of American Publishers at http://www.publishers.org/press/30/. Howard, J. (2011). University Presses Face Watershed Moment in Explosion of E-Book Options, *The Chronicle of Higher Education*, Jan. 11, 2011.

Apple iBookstore Team (2011). EPUB and Metadata Style Requirements, *Publisher User Guide 1.4.1*, 22 - 25.

Monette, S. (2011). Fundraising and Self-Publishing: Lessons Learned, *Storeytellers Unplugged weblog*, at http://storytellersunplugged.com/sarahmonette/2011/02/07/fundraising-and-self-publishing-lessons-learned/.

Young, P. (2010), Fund-raising and self-publishing (the open source way), Part One, *opensource.com*, http://opensource.com/life/10/9/fund-raising-and-self-publishing-open-source-way-part-one.

Moulton, J. (2009). Publishing Student Writing – and Your Own, *edutopia*, http://www.edutopia.org/self-publishing-student-writing.

The Integration of eLearning at the University of Thiès, in Senegal

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Abstract: As a public academic institution of higher learning in Senegal that is facing growing demands for its services, the University of Thiès (UT) has a need to significantly increase its capacity to deliver its portfolio of courses, programs and degrees. In partnership with the USAID/ERA project, UT is aiming to leverage eLearning and online education as key parts of its solution mix oriented towards broadening educational access in Senegal. Given the challenge of providing modern and quality educational opportunities to underserved populations UT reached for a solution mix that involves both traditional face-to-face classroom and computer-mediated / online training, or blended learning. With the assistance of all of its partners including the USAID/ERA project, UT is aiming to make its approach to eLearning and online education a model for Senegal and the broader West African Region.

Literature Review

The University of Thiès (UT), which was born out in 2007 of a fusion of multiple academic institutions is characterized by its many sites. As a public academic institution with a strong focus and orientation towards the agriculture sector, UT is facing growing demands for its services. The institution is desperately seeking to increase its capacity to deliver education. UT decided to focus on leveraging eLearning and online education to deliver more programs across its widely dispersed campuses and to reach the largest possible number of learners.

There are many sets of ideas, precepts and techniques to keep into account when implementing an e-learning system, particularly for use in the agriculture sector (Berge and Leary, 2006). While equipment and technical resources are needed, research however shows that in most cases, the anticipated uses of eLearning as well as users characteristics play important roles in achieving the user acceptance and learning gains desired for that approach (Garnic and Kuskusic, 2007). According to Liaw and Huang (2007) four elements should be taken into account when developing e-Learning environments. These are: environmental characteristics, environmental satisfaction, learning activities, and learners' characteristics. Instructor feedback and students learning style can significantly affect quality of e-learning (Markovic and Jovanovic, 2011).

In Senegal, access to higher education is open to all new baccalaureate graduates. With the anticipated increase in new college-level applicants, it is estimated that a significant share of educational investments is needed to achieve equity in tertiary education in Senegal (Worldbank, 2011). Given the severe constraints in educational spaces and general academic infrastructure, institutions of higher learning in Senegal such as UT seek to leverage eLearning to achieve the goal of broadening educational access.

USAID/ERA, a five-year project that is funded under President Barack Obama's Initiative for Food Security, "Feed the Future,", intends to assist UT in implementing an eLearning and online education program that can serve as a model for Senegal and the broader West African Region. Launched in January 2011, USAID / ERA has the key objective of strengthening institutional and human capacities in the fields of education and research in agriculture in Senegal. USAID/ERA is focused capacity building at the tertiary level and intends to assist its partner institutions UT to leverage open and distance learning (ODL).

Goals and Objectives of the Practice Session

Over the course of its implementation, USAID/ERA seeks to assist its partners to developing e-Learning content, delivering degree, diploma land certificate programs; building consortia of educational institutions; conducting research and evaluation.

With this practice session, we intend to present the key challenges and opportunities of providing modern and quality educational opportunities to underserved populations in targeted development sectors through eLearning and online education.

Specifically we will orient the participants in the following concepts and themes during the session:
- Leveraging eLearning to improving access and equity to higher education opportunities in low resource environment,
- Using open source teaching tools and techniques in non-English speaking countries,
- Reinforcing eLearning development in Senegal through networking,
- Maintaining the focus on education and quality, even under severe budgetary constraints, and
- Creating conditions for acceptance of the entire university community to engage with e-learning.

Discussion

Sustainable integration of e-learning at university of Thiès will contribute to find solution to the problem of access. Other relevant issues such as the need to create favorable learning environments for underserved populations including women remain very important for Senegal. Therefore, success of the UT eLearning program will hinge, particularly, on the commitment and engagement of the entire institution to meet the challenge.

References

Berge, Z., & Leary, J. (2006, June 12). Trends and challenges of eLearning in national and international agricultural development. *International Journal of Education and Development using ICT*, 2(2).

Garnic A.and Cukusic M. (2007). Universal Design Within the Context of e-Learning. C. Stephanisdis (Eds.): Universal Access in HCI, Part III. HCII 2007, LNCS 4556, pp 617-626, 2007. Springer Verlag Berlin Heidelberg 2007

Liaw S. S. and Huang H. M. (2007). Developing a collaborative e-Learning system based on users' perceptions. *Lecture Notes in Computer Science*. 4402, 751-759.

Makovic S. and Jovanovic N. (2011). Learning style as a factor which affects the quality of e-learning. Springer Science+Business Media B. V. 2011

Worldbank (2011, May 26). $100 Million to Improve the Management of the Senegal Tertiary Education System. Retrieved from http://go.worldbank.org/B7PCPLFFU0

The Role of the Instructional Designer in the Academic Library

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Abstract: What is Information Literacy? How does it fit into the Academic Library? The growing rate of information illiteracy is staggering. New generations rank higher in confidence but nothing else. As a result, at the college level there is an increase of students with confidence in their ability to achieve but a lack of skill to accompany that belief. This results in thin bibliographies and poorly constructed research papers. However, without a solidly defined definition of information literacy and a guide in place, many institutions are struggling to implement a full information literacy program. Although, once a primary function of the subject faculty, with a waning economy, that responsibility has shifted. Due to a recent downsize, many librarians have found themselves serving as the primary instructional outlet for information literacy. The librarian, generally untrained as an educational professional, is thrust into the role of Instructional Designer and Instructor. In order to successfully reach a high volume of students, librarians have embedded themselves and Information Literacy in the library's learning environment. But is this enough? The role of the instructional designer in the library will be discussed during this session.

Literature Review

The challenge for librarians, generally snubbed by faculty in academia because of the terminal degree of Master's, is to attend conferences, conduct research in order to remain current with instructional theories thusly proving their relevance. Librarians have often been regarded by students, members of the community, and many others as a valid place to find information and research help. However, the research shows that librarians are not formally trained instructors (Shera, 1976). Because the currently developed Information literacy programs are varied in range, standards should be created to provide standardized guidelines on how to create a solid Information Literacy plan with an Instructional Design underpinning. Current Information Literacy plans consist of many different formats to include face to face instruction, online, and combinations of different formats. Librarians have traditionally had the role to select, acquire, collect, and organize of material and to provide access to it (Shera, 1976). However, they generally lack the instructional design skills to construct a solid Information Literacy program with a strong Instructional Design foundation. In order to bridge this gap, the research proposes that academia should integrate the instructional designer and the librarian into one seamless role. Based on work done by McGurr (2008) using the Instructional Systems Design model, ADDIE, helped improve the flow of materials in a library. The systematic design of an Instructional Designer has been used in the library in other ways as well. Librarians often collaborate with instructional designers to identify, assess and classify learning outcomes in a systematic manner in order to develop successful projects to meet those student learning outcomes (McMillian, 2011). The instructional designer rounds off the project with implementation and evaluation. When the librarian and the instructional designer have worked together the strain has been minimized. Although librarians have the expertise they need for instruction, the systematic design of the instructional designer is necessary to translate this knowledge into measurable outcomes. However, since funds have been on a steady decline, the role of Instructional Designer has been embedded into the librarian role thus eliminating this strain (Shank, 2006).

Goals and Objectives for the Practice Session

The purpose of this session is to introduce the academic library from all angles. This session will launch the discussion on the research surrounding the issues of information illiteracy, the faculty and the library, librarian education and the instructional designer's role. Upon completion of this session, participants will be able to identify how they play a crucial collaborative role with the library to reduce illiteracy and produce productive citizens. They will be able to start developing a plan to implement at their institutions.

Description of the Practice

The author has devised a model to aid each participant (faculty, librarian, instructional designer and student) in identifying their role in the library and working together to maximize this role. Each step of the Instructional Design process ADDIE will be defined and justified (ADDIE: Analysis, Develop, Design, Implement and Evaluate) for

each participant. Information Literacy will be defined. The importance of each participant to become immersed in the library will be modeled.

Discussion

Instructional Designers have value in the library. Librarians have value in the library. Faculty members have value in the library. It is the successful collaboration between all three of these partners that empowers our students to overcome the current high rate of information illiteracy. To meet this challenge, how can you alter your thought process or participation to be a more engaging member in this successful collaboration?

References

Bruce, C. S. (1997). *The seven faces of information literacy*. Adelaide: Auslib Press.

Creamer, D. (2007). Universal instructional design for libraries. *Colorado Libraries*, *33*(4), 12-15.

Grassian, E. S., & Kaplowitz. J. R (2001). *Information literacy instruction: Theory and practice*. New York: Neal-Schuman.

Hook, S. J. (2003). In-house training for instruction librarians. *Research Strategies*, 19, 99-127.

Kingma, B., & Keefe, S. (2006). An analysis of the virtual classroom: Does size matter? Do residencies make a difference? Should you hire that instructional designer? *Journal Of Education For Library & Information Science*, *47*(2), 127-143.

Maxted, L. (2011). Waiting for "Superman." *Library Journal*, *136*(11), 56.

McGurr, M. (2008). Improving the flow of materials in a cataloging department: Using ADDIE for a project in the ohio state university libraries. *Library Resources & Technical Services*, *52*(2), 54-60.

McMillan, K. (2011). The role of an instructional design specialist in an academic library. *Indiana Libraries*, *30*(1), 73-74.

Oldham, B. W., & Skorina, D. (2009). Librarians and instructional technologists collaborate. *College & Research Libraries News*, *70*(11), 634-637.

One Instructional Designer Across 13 Universities. (2007). *Distance Education Report*, *11*(1), 4-8.

Owusu-Ansah, E. K. (2004). Information literacy and higher education: Placing the academic library in the center of a comprehensive solution. *Journal of Academic Librarianship,* 30 (1) 3-16.

Rockman, I. F. (2004). Integrating information literacy into the higher education curriculum: Practical models for transformation. San Francisco: Jossey-Bass.

Shank, J. D. (2006). The blended librarian: A job announcement analysis of the newly emerging position of instructional design librarian. *College & Research Libraries*, *67*(6), 515-524.

Shera, J. H. (1976). Introduction to library science: Basic elements of library service. Littleton, CO: Libraries Unlimited.

Sittler, R. L. (2011). Identity crisis: Librarian or instructional technologist? *Indiana Libraries*, *30*(1), 8-14.

The Roundtable Discussion as Collaborative Assessment and Innovative Pedagogy

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Abstract: Collaborative assessments have much to offer instructors and students compared to individual assessments. However, because of their unfamiliarity, instructors have not been able to utilize collaborative assessments effectively at the pedagogical level. The lack of current research on and proposals for collaborative assessments suggests that researchers and instructors do not have sufficient direction for implementing such assessments. Hence, we propose an innovative collaborative assessment, the roundtable discussion, which serves a dual purpose as assessment and pedagogy. We will conduct a roundtable discussion, in a manner designed for the classroom, in which we discuss the very roundtable discussion format we are proposing. In this discussion, we will present findings suggesting that the roundtable assessment could be an effective pedagogical approach.

Literature Review

Compared to traditional individual assessments, collaborative assessments are not yet common in the majority of classrooms and courses (Hargreaves, 2007). It could be that collaborative assessment has often been overlooked as a mode of assessment due to a circular relationship, where it is underused because of its unfamiliarity and unfamiliar because it is underused. Indeed, Hargreaves (2007) argues that the main resource needed for collaborative processes is familiarization. However, growing interest in collaborative assessment is looming since compared to widely-used individual assessments, collaborative assessments have been shown to "promote learning, critical thinking, and retention of material, as well as to improve test performance… be more enjoyable for students, [reduce] test anxiety, and [increase] student satisfaction, while simultaneously providing students the opportunity to focus on learning and the application of course content" (Ioannou & Artino, Jr., 2010, p. 189).

Despite the potential benefits of collaborative assessment, a review of the literature suggested that there have been no empirical investigations of collaborative assessments in the social sciences, with the exception of Ioannou & Artino, Jr.'s study (2010). However, this study was conducted by adapting a traditionally individual assessment, the multiple-choice test, to the marks of collaboration. In other words, the research (or lack thereof) indicates that collaborative assessments have not been embraced by instructors in the social sciences, and, when used, have been merely incorporated into the framework of the pervading mode of assessment. In this way, collaborative assessments have not been particularly innovative, especially if they are really just individual assessments completed by a handful of students working together.

Since employers are placing greater emphasis on job candidates having polished communication skills, teamwork skills, and interpersonal and social networking skills (NACE, 2010), collaborative assessment (and collaborative learning, essentially) could be a promising way to prepare college students, at a relational level, for the job market and workplace. At the same time, given the aforementioned benefits of collaborative assessment, it could also fulfill pedagogical needs if effectively implemented. For this practice session, we propose that the roundtable discussion format (which is naturally collaborative) that is sometimes used in educational settings with small numbers of students can be a promising collaborative assessment for larger settings (i.e., class sizes of 30-40 students). Furthermore, this collaborative assessment could also be an innovative and active pedagogical approach. We will showcase the roundtable discussion in this practice session.

Goals and Objectives for the Practice Session

We anticipate that participants in this practice session will be able to understand broadly:
1. Why there is a need for collaborative assessments,
2. How the roundtable discussion can be applied as a collaborative assessment, and
3. What the roundtable discussion can offer pedagogically.

Description of the Practice to be Modeled

Before each class (for a weekly course), students are expected to read the assigned chapter and take notes in the margins about what they read. Specifically, students are expected to document their thoughts, questions, criticisms, etc. Students should attend each class prepared to participate in a roundtable discussion about the assigned reading. At the outset of each class, the instructor selects five to six students to participate in the roundtable. Each student is selected to participate twice during the semester. Without knowing when they will be selected, students must attend each class prepared to participate in the roundtable discussion. Because of its nature, the roundtable format accounts for reading and attendance simultaneously while paving the way to class participation. Students are graded on three criteria: preparation, participation and discussion. In other words, students selected for the roundtable are expected to have completed the reading carefully, to participate in the discussion, and to bring their insights to the table. Students who are not selected to participate in the roundtable are still invited to be engaged and to participate despite not being assessed since there is a complementary summative assessment at the end of the semester that requires students to reflect upon each roundtable, whether they participated or not.

In this practice session, we will model the roundtable discussion by selecting five interested attendees to accompany us at the roundtable where we will be discussing our vision of the roundtable discussion as collaborative assessment and innovative pedagogy (i.e., we will be conducting a roundtable discussion about roundtable discussions). In particular, we will discuss the reasons for implementing such an assessment format, the mechanics of designing and implementing this structure in a course, the kind of disciplines or subject matter that are suited to roundtable discussions (e.g., the social sciences and psychology especially, subjects that have clearly debatable theoretical frameworks and research findings), and our preliminary findings about the pedagogical effectiveness of this collaborative assessment (see below).

Discussion

Preliminary findings suggest that the roundtable assessment could be effective pedagogy. For a class that meets once a week for two and a half hours, lecturing has been unnecessary because the roundtable discussions consume entire class periods. Although the instructor guides the roundtable discussions based on his/her ideas about the reading, the roundtable format facilitates students bringing up valuable insights, which depth has surprised the instructor. Because students do not know when they will be participating in the roundtable, they must prepare diligently before each class which makes audience members more apt to participate because they were already prepared to be in the roundtable. We have found that audience members participate in the discussions just as much as roundtable participants, even though they are not assessed for doing so. The roundtable also facilitates active learning as students must contribute at least for the sake of their grade and critical thinking skills by allowing students to evaluate their positions in light of other's positions. Because the roundtable format gives students more to say in an atmosphere that encourages speaking up, even typically "quiet" students have made valuable and surprising contributions that they might not have been encouraged to do in other, more traditional settings. Finally, students have developed intellectual and friendly relationships with each other because of the roundtable, which helps in the development of employable social skills.

References

Ioannou, A., & Artino, Jr., A. R. (2010). Learn more, stress less: Exploring the benefits of collaborative assessment. *College Student Journal, 44*(1), 189-199.

Hargreaves, E. (2007). The validity of collaborative assessment for learning. *Assessment in Education, 14*(2), 185-199.

National Association of Colleges and Employers (Producer) (2010). Job Outlook 2010 (Video). Retrieved April 11, 2010, from the National Association of Colleges and Employers (http://www.naceweb.org/Job_Outlook_2010_video/).

The SCALE-UP Pedagogy in Introductory Physics at Virginia Tech

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Abstract: In Fall 2011, the Physics Department adopted the SCALE-UP pedagogy of collaborative group learning in one section of PHYS 2305. This learning style was extended to large lecture classes at North Carolina State University in the late 1990's based on earlier development in the active-learning model known as Studio Physics. Virginia Tech has two SCALE-UP classrooms, one that can accommodate 54 students and another for 28 students. The PHYS 2305 section, with an enrollment of 42 physics majors, uses the former room. Three groups of three students each sit at a nine-seat round table and carry out a variety of activities collaboratively during each class. Formal lecturing is practically non-existent; instead, students are expected to familiarize themselves with the material beforehand through guided reading of the textbook and posted lecture notes. The students are trained in teamwork, communication, critical thinking skills, a functional understanding of physics through the development and application of problem-solving techniques, and a positive attitude toward learning. In this talk, I will discuss our experiences with the SCALE-UP concept in PHYS 2305 (Fall 2011) and 2306 (Spring 2011) and a comparative assessment with the traditional lecture pedagogy that continues to be used in the other sections of PHYS 2305.

The Socratic Method in Higher Education: The Pursuit of Better Learning for Better Action

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Abstract: "The unexamined life is not for man worth living." It is with this assertion in his *Apology*, that Plato illustrates the rationale for Socrates' method of questions, replies, and more questions. The Socratic Method provides a way of examining complex issues, challenging basic assumptions, and moving toward truth. Socrates' method continues to be used widely, not only in philosophy. Through it, students make broader and deeper connections with other areas and life experiences. They are encouraged to question, to be challenged, and to evaluate their ideas and arguments as well as those of others in an environment of mutual respect. Making these connections requires a commitment to the acquisition of understanding and knowledge, to a humility and admission of ignorance before difficult questions, to the posing and answering of more questions and possible answers through rigorous critical and reflective thinking, problem solving, collaboration, and self-assessment – all which must be done by the student. The approach presented here extends the Socratic Method to writing and to guide students to develop this life long commitment, by helping and encouraging each to develop their abilities, do their best, and offering opportunity for application of content as well as on going development with others.

Literature Review

Law, medicine, and, and engineering schools often note that they must take graduates of our colleges and teach them how to read and write before they can teach them, law medicine, or engineering (Orr, 2011). Many of these professional institutions are known for their use and success with versions of the Socratic Method. Other institutions of higher learning stress student centered learning and teaching that also have as their basis the Socratic Method, rather than lecture. Thus there exists wide acknowledgment that excellence in learning requires more than imitation and repetition. It requires deep understanding with developed skill in critical and analytic reading, reflective thinking, written analysis, articulation, dialogue, collaboration, application, and problem solving.

Goals and Objectives for the Practice Session

The five goals and objectives for this interactive practice session are to enable participants:
1. To know what is entailed in the Socratic Method,
2. To know what is entailed in critical and reflective thinking, writing, problem solving, and assessment,
3. To understand the relationship between the Socratic Method and critical and reflective thinking, writing, problem solving, and assessment,
4. To be able to connect theory with practice in their classes and in higher education more broadly by knowing why and how to use the Socratic Method, and
5. To dialogue on expanding the use of the Socratic Method.

Description of the Practice to be Modeled

The interactive practice session will present the Socratic Method as a demonstrated successful approach for effective learning in various disciplines grounded in data and evidence that puts theory into practice. The session is divided into three parts. It begins with a discussion of the pedagogical approach involved in the Socratic Method as a theoretical basis for the instruction of critical and reflective thinking, writing, problem solving, and assessment in diverse fields and disciplines. Secondly it provides a demonstration of a new version of this approach to learning with the components necessary to be able to put theory into practice. Finally the session provides opportunity for practice and dialogue on the approach by participants. Participants will leave with sample copies of self-assessments and application by students who have developed and succeeded through this learning experience.

Discussion

Participants will have an opportunity to discuss the need for higher education instructors and institutions to add the Socratic Method as a learning practice that has been shown to be effective and successful consistently in a wide

range of areas in higher education with diverse populations of students. Furthermore, they will discuss the importance of national and global dialogue on the re-interpretation and integration of orientation, goals, skills, learning and pedagogical knowledge, and the Socratic concern for education, morality, and civic interconnection.

References

Berrett, D. (2011). Improving higher education, which core matters more: Skills or curriculum? *The Chronicle of Higher Education*. Retrieved from: http://chronicle.com/article/In-Improving-Higher-Education/129134/

Cohen, S. M., Curd, P., & Reeve, C.D.C. (2005), Readings in Ancient Greek Philosophy From Thales to Aristotle (3rd ed.). Indianapolis, Indiana: Hackett Publishing Company.

Copi, I., Burgess-Jackson, K. (1996). Informal Logic (3rd ed.). Upper Saddle River, New Jersey: Prentice Hall.

Grube, G. M. (2002). Five Dialogues (2nd ed.) Indianapolis, Indiana: Hackett Publishing Company.

Orr, T. R. (2011). The socratic method in law school: An imperfect but credible witness against modern empirical education and a paradigm for homeschooling. *Classical Homeschooling*. Retrieved from: http://classicalhomeschooling.com/classical-homeschooling-second-issue/the-socratic-method-in-law-school/

To Grade or Not to Grade? Do We Really Have a Choice?
Helping Students Focus on Learning Rather Than on Performance

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Abstract: The conventional American education system (at nearly all levels) includes the ubiquitous practice of assigning grades. While teachers at most universities seldom have the option of not assigning final grades for a course, they do have significant leeway in determining criteria for specific assignments as well as how frequently they share grades with students. Research literature indicates that students may both learn more about how to improve their work as well as focus more on the content being learned if grades (numbers or letters) were not present on all their assignments. However, these conclusions clash with the pressures many teachers have of justifying to students how final grades were determined, with beliefs about how students are truly motivated (e.g. through extrinsic motivators such as grades), and just with standard teaching norms in general. This practice session will help the attendees explore the idea of contracting a no-grades semester with students wherein all assignments are graded, but those grades are not shared with students unless the work falls below an agreed-upon level (e.g. a B-). First author Jones implements this practice with his students and will share his experiences; second author Morrison, while drawn to the idea due to its research-supported nature, raises concerns about its implementation and explores some grading options that are less "extreme" than the no-grades one. Attendees will be encouraged to share their ideas and experiences with ways to grade students in a manner that help them focus more on learning and less on performance.

Literature Review

A performance orientation is when a student focuses on how well he/she accomplishes something, the end result. A learning orientation is when the students focuses on the process of learning and on the content of what is being learned. A learning orientation is one that encourages the students to make sense and personal meaning out of the world, it helps develop in students a curiosity and excitement about learning that makes them constantly look for opportunities to expand their understandings, it also ultimately helps them to successfully face all sorts of challenges as well as helps them feel free to admit to confusion and mistakes. David Otto (1973) long ago made the point that grades make student shift their attention away from a learning orientation to just the earning of a grade. Students, perhaps because of the existence of grades, seem to get distracted from the goal of truly learning something and instead tend to spend their time comparing themselves to fellow students, doing just enough to "get by," or fretting over making a piece of work look right or sound right so it will get a good grade. This, as Elizabeth Aaronsohn (1994) observes, "replaces the desire to express, explore and communicate." This turning away from a learning orientation and toward a performance orientation may make students believe that only those things that are measured and documented are worth anything (Illich, 1971). Author Alfie Kohn analyzed scores of research studies on grades and extrinsic motivators in schools. He concluded that the existence of grades lead to students thinking less creatively, for when one is paralyzed by fear of failure or a bad grade, one is unlikely to want to take risks and be original. Grading also makes students less apt to prefer challenging tasks over "safe" ones – students fear that they might not get the reward that is dangled in front of them (the "good" grade) if they step too far out on a limb or try to tackle something too challenging (Kohn, 1986, 1993, 1998, 1999).

Given these findings, many teachers have explored ways to minimize the above effects of grades while still working within a conventional educational environment that requires them. They have done so by providing detailed narrative feedback to students, setting up grade contracts with students, having students self-evaluate, etc. Various approaches to dealing with this dilemma will be touched on in this presentation, with the heaviest emphasis being placed on the "no-grades" semester contract employed by author Jones.

Goals and Objectives

In this session, participants will:
- Engage in discussion on the barriers to learning caused by the existence of grades,
- Explore some alternatives to conventional assigning of grades to each assignment,
- Discuss the pros and cons of various alternative grading practices,

- Share their own experiments and experiences with alternative forms of grading students, and
- Delve into the various factors that influence teachers' choice of grading alternatives (e.g. subject being taught, class size, gender of teacher, etc.).

Description of Practice to be Exemplified

Through an autoethnographic approach, Jones examined the impact of grades on college students' learning process. In his courses, he did not write a grade on any returned assignments. Rather, the he inundated the students' work with comments and suggestions for improvement. In this presentation, he will discuss students' reactions to the non-traditional grading practices. He suggests that the removal of a written grade on an assignment increases student learning and combats the hegemonic practices that exists socially in traditional grading.

Morrison will share her attempts to follow Jones' lead on trying to turn students' attention away from performance validation and more to learning the content and process. In her classes, she has given students the option of having a grade listed on specific assignments; she has encouraged students to take her classes pass/fail; she has also attempted grade contracts and forms of student self-evaluation. She will explore the pros and cons of these attempts, as well as share her trepidation over the whole process of challenging the grading status quo.

Discussion

Specific questions to be explored in the session:
- What ways have you (participants) attempted to lessen students' performance orientation?
- What challenges do we face in terms of our and our students' histories in conventional educational institutions in implementing these ideas? What institutional barriers exist?
- Could having pass/fail grading systems be the solution to the problems associated with grades?
- Is it even feasible to imagine academe without our current grading system?

References

Aaronsohn, E. (1994). Teacher-pleasing: Traditional grading--and learning? A Collaborative Qualitative Study. Paper presented at a Conference of the International Society for Exploring Teaching Alternatives. Retrieved from ERIC database. (ED 374102)

Bishop, J.H. (1992). Why U.S. students need incentives to learn. *Educational Leadership, 49*, 15-18.

Guskey, T. R. (1994). Making the grade: What benefits students. *Educational Leadership, 52*, 14-20.

Illich, I. (1971). *Deschooling society*. New York: Harper and Row Publishers.

Kirschenbaum, H., Napier, R., & Simon, S.B. (1971). *Wad-ja-get? The grading game in American education*. New York: Hart Publishing.

Kohn, A. (1986). *No contest: The case against competition*. Boston: Houghton Mifflin Co.

Kohn, A. (1993). *Punished by rewards*. Boston: Houghton Mifflin Co.

Kohn, A. (1998). *What to look for in a classroom*. San Francisco: Jossey-Bass Publishers.

Kohn, A. (1999). *The schools our children deserve.* Boston: Houghton Mifflin Co.

Krumboltz, J. D., & Yeh, C. J. (1996). Competitive grading sabotages good teaching. *Phi Delta Kappan, 78,* 324-327.

Otto, D. (1973). Pass fail grading systems: A literature review. Alberta, Edmonton, Canada: Office of Institutional Research and Planning. (ED 109202)

Placier, M. (1995). But I have to have an A: Probing the cultural meanings and ethical dilemmas of grades in teacher education. *Teacher Education Quarterly, 22,* 45-63.

Rugg, H.O. (1918). Teachers' marks and the reconstruction of the marking system. *Elementary School Journal, 18,* 701-719.

Simon, S. B., & Bellanca, J.A. (1976). *Degrading the grading myths*. Washington, DC: Association for Supervision and Curriculum Development

Weller, L.D. (1983). The grading nemesis: An historical overview and a current look at pass/fail grading. *Journal of Research and Development in Education, 17,* 39-45.

Universal Design: Creating an Inclusive Learning Environment in Higher Education

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Abstract: In higher education, a concerted effort is needed to respond to instructional needs and best practices for reaching an increasingly diverse student population. Universal Design (UD) at the college level is an effective teaching practice that creates an inclusive learning environment that is accessible to a wide range of learners. Learn how to implement principles of universal design in your teaching to enhance accessibility for learners with disabilities or from diverse cultural backgrounds. Participants will have the opportunity to apply these principles to course syllabi and tests and create more accessible instructional materials.

Literature Review

The successful integration of universal design concepts into college learning settings helps to make the environment, curriculum, and materials accessible to ALL learners. The Universal Design (UD) model was derived from the field of architecture and extended to include the concept of learning environments based on research by Rose and Meyer (2002). Furthermore, universal design is an important component found in legislation including The Assistive Technology Act (1988) and Title I, Section 103 of the Higher Education Opportunity Act (2008). These laws support faculty development in universal design to insure students with disabilities and those who are limited English proficient are learning in an inclusive environment, with access to and full participation in the curriculum.

The Universal Design for Learning (UDL) model offers a means of insuring that curriculum is accessible to all learners. Universally designed curriculum offers students opportunities for multiple methods of instruction, flexible means of expressing knowledge, and options for engaging in learning (Center for Applied Special Technology, CAST). Universal design involves using instructional materials and learning activities that make learning goals achievable by individuals with wide differences in the ability to see, hear, think, speak, move, read, write, understand English, attend, organize, and remember. This research recognizes that in order for learning to take place, curriculum has be designed to operate three brain networks; recognition, strategic and affective. When designing curriculum with these networks in mind, they propose that the learner will have full access and opportunity to participate in learning.

While UDL is learner centered, higher education researchers began to shift the focus from the learner to the instructional practices. Universal Design for Instruction (UDI) integrates accessibility features of the "built" environment, which are in turn, translated to the learning environment (CAST, 2001; McGuire, Scott & Shaw, 2003; Higbee, Chung, & Hsu, 2005). UDI features flexible curriculum materials and methods that are built into instructional design, not added on or adaptations of existing curricula. Universal design insures that instructional practices are accessible and it offer a) inclusiveness, b) physical access, c) alternative delivery methods, d) information access, e) interaction, f) feedback, and g) demonstration of knowledge (Center for Applied Special Technology (CAST).

Universal design provides faculty with methods for planning and delivery of instruction that addresses the needs of increasingly diverse learners. Principles of UDI are based on the model from architecture with two additional principles which include the learning environment. These principles include a) equitable use, b) flexibility, c) simple & intuitive, d) perceptible information, d) tolerance for error, e) low physical effort, f) size and space for approach, g) community of learners, and h) instructional climate (Scott, McGuire & Foley, 2003).

Scott and McGuire (2003) emphasize the importance of universal design models for educational strategies and approaches in higher education. As universities respond to changes in higher education and increasingly diverse student bodies, the use of emerging technologies on campus, instructional strategies will broaden to include more inclusive methods and techniques to reach all students. Technologies and application of universal design principles can extend an individual's abilities, help them manage their lives and promote independence and success in the workplace (Asselin, 2011).

Goals and Objectives

The overall goal of this presentation is to provide instructors with tools to improve accessibility of curriculum to ALL diverse learners. Objectives include to:
- Understand challenges faced by students with diverse learning needs,
- Provide an overview of universal design,
- Apply universal design principles to instructional practices, and
- Evaluate accessibility of tests & syllabi.

Discussion

Nationally the rate of graduation among college students with disabilities or are English language learners is on the decline. What are the challenges that these learners face in higher education? Research reveals that many factors including faculty attitudes, knowledge and instructional practices impact student success. Faculty interested in improving their instruction and facilitating student learning will benefit from learning about one of the most promising practices in higher education, *Universal Design for Learning/Instruction.* Faculty will be provided with opportunities to apply Universal Design (UD*)* principles to course syllabi and tests to enhance the success of increasingly diverse learners.

References

Asselin, S. B. (2011). Assistive Technology in Higher Education. In Surry, D.W., Stefurak, J., & Gray, R.M. (Eds.), *Technology Integration in Higher Education: Social and Organizational Aspects*.(pp. 188-200). Hershey PA: Information Science Reference.

Higher Education Opportunity Act. 20 U.S.C. 1001 et seq.(a) 23.

Center for Applied Special Technology (CAST). www.cast.org

Higbee, J. L., Chung, C. J. & Hsu, L. (2005). Enhancing the inclusiveness of first year courses through instructional design. *Best Practices for Accessibility & Retention in Higher education*. Minneapolis, MN: Center for Research on Developmental Education and Urban Literacy.

McGuire, J. M., Scott, S. S., & Shaw, S. F. (2003). Universal design for instruction: The paradign, its principles, and products for enhancing instructional access. *Journal of Postsecondary Education and Disability*, 17(1), 11-21.

Scott, S. S., McGuire, J. M. & Foley, T. E. (2003) Universal design for instruction: A framework for anticipating and responding to disability and other diverse learning needs in the college classroom. *Equity and Excellence in Education*, 36(1), 40-49.

Rose, D. H. & Meyer, A. (2002). *Teaching every student in the digital age: Universal design for learning*. Alexandria VA: Association for Supervision and Curriculum Development.

Scott, S. S., McGuire, J. M. & Foley, T. E. (2003) Universal Design for Instruction: A Framework for anticipating and responding to disability and other diverse learning needs in the college classroom. *Equity and Excellence in Education*, 36(1), 40-49.

The Technology Related Assistance for Individuals with Disabilities Act of 1988, U.S.C 2201, 2202.

Use of the Teacher Work Sample to Promote Professional Growth Among Adjunct Faculty

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Abstract: Part-time and adjunct faculty members have been present in institutions of higher learning since very early on. The purpose of this study was to examine the experiences that community college adjunct faculty had with college teaching and implementation of the Teacher Work Sample. Another objective was to see how the completion of Teacher Work Sample contributed to the adjuncts' reflective thinking about teaching and learning and whether the TWS experience prompted them to new ways to look at their teaching practices. This study indicated that the Teacher Work Sample methodology was perceived to be an effective tool to assist in the professional growth of adjunct faculty members. This study is consistent in its findings with other studies that suggest that the TWS is an assessment method that is a valid tool to assist in the training of modern teachers. Previously Teacher Work Sample methodology has only been used to demonstrate teaching preparedness of the teacher candidates. This research presented adjunct community college faculty members to be a new target audience of the TWS method.

Introduction

Part-time and adjunct faculty members have been present in institutions of higher learning since very early on. At the time the study was conducted (2009), adjunct faculty constituted sixty percent of all faculty members in American postsecondary institutions. These groups of faculty provide a variety of unique professional experiences to their students; they offer financial savings and scheduling flexibility for their colleges and on many levels, adjuncts offer a range of other contributions to their colleges. Currently there are a lot of forces on a college campus, especially community college campuses that hinder continuity, inhibit a sense of common purpose and mission, and thwart the professional development of adjunct professors. Recently, two key elements to effective instruction have received increasing attention in teacher education and professional development: (1) the ability for teachers to reflect on their teaching and (2) the ability of teachers to meet minimal standards of instructional effectiveness. Since the Teacher Work Sample addresses both of these elements, the purpose was to examine the experiences that community college adjunct faculty had with college teaching and implementation of the Teacher Work Sample. The uniqueness of the study was that at the time of this research no other scholarly studies applied the TWS method on a college environment in general, or part-time college teaching faculty members in specifics.

Literature Review

Current research of the part-time faculty status in American system of higher education consistently points to drastically poor working conditions, meager salaries, lack of professional development opportunities and an overall voiceless position of adjunct faculty within the academia (Jacoby, 2006; Marshall & Rossman, 2006; Roueche, Roueche & Milliron,1995; Wallin, 2004). With the realization that it would take a national reform to change and improve the situation with part-time employment, this research study was designed to approach adjunct employment on a microscopic level (with only six research participants). The focus of this research was to examine the experiences that community college adjunct faculty had with college teaching and implementation of the Teacher Work Sample.

Teacher Work Sample methodology is one of the assessments programs that require teacher candidates to produce credible evidence of their effectiveness in fostering student learning. The TWS method originated at Western Oregon University in the late 1980s that was created as a response to the National Commission on Teaching and America's Future's recommendation to develop teacher knowledge about curriculum and assessment, and specifically the pre-service teachers' ability to foster student learning (Schalock, Schalock & Girod, 1997). Teacher Work Sample has also been recognized as "a model for thinking about teaching and learning" (Devlin-Scherer et al., 2007, p. 51) as well as an assessment tool that allows to link teacher education and preparation with student learning.

Methodology

This qualitative study allowed an in-depth investigation of the impact and applicability of TWS methodology in a community college setting. Through this qualitative research project multiple data sources were utilized by the researcher, the data were gathered through the individual face-to-face interviews, focus group interviews, observation of TWS training session, and the overall rating of adjunct TWS units (on a scale from 1-3) through the use of the TWS scoring rubrics.

This qualitative study utilized face-to-face and focus group interviewing for data gathering. It was the responsibility of the researcher to collect the data and then to "make sense" of what was collected, through interviews, documents, and observations. All of the participants of the study were required to participate in a special interactive training workshop that was specifically designed to provide information about Teacher Work Sample methodology and its application. Each participant completed one TWS unit which was then evaluated by independent university raters.

Results

Unanimously all six participants admitted that the Teacher Work Sample was invaluable for their professional growth and should be incorporated as part of the professional portfolio offered at their college. It was suggested for college administration to utilize the TWS rubrics as a hallmark template of expectations for all instructors at the college. The TWS method's organization was identified by the study participants as one of the most obvious advantages of their entire experience. Five out of six adjuncts suggested that the study was the most comprehensive study that they have ever participated in. All adjunct participants of the study admitted that every single rubric of the seven TWS rubrics had value and allowed them to gain an in-depth reflection and assessment of their teaching. Many suggested writing the Teacher Work Sample was a new way to develop and document their teaching successes and failures.

This study indicated that the Teacher Work Sample methodology was perceived to be an effective tool to assist in the professional growth of adjunct faculty members. This study is consistent in its findings with other studies (e.g. Devlin-Scherer et al., 2007; Schalock, Schalock & Girod, 1997) that suggest that the TWS is an assessment method that is a valid tool to assist in the training of modern teachers. This study is also consistent with Stronge and Tucker's (2000) conclusion that the TWS method works to assess the level of preparedness of a teacher. The results of this study also suggest that Teacher Work Sample training at the community college helped the part adjuncts to feel included in the academic community. Through the exploration of the professional needs of adjunct faculty it is hoped that this project will move higher education institutions towards more inclusive practices with part-time faculty.

References

Devlin-Scherer, R., Burroughs, G., Daly, J., & McCartan, W. (2007). The value of teacher work sample for improving instruction and program. *Action in Teacher Education* , *29*(1), 51-60.

Jacoby, D. (2006). Effects of part-time faculty employment on community college graduation rates. *The Journal of Higher Education*, *77*(6), p. 1081-1103.

Marshall, C. & Rossman, G. (2006). *Designing qualitative research.* Thousand Oaks: Sage Publications.

Roueche, J., Roueche, S., & Milliron, M. (1995). *Strangers in their own land: Part-time faculty in American community colleges.* Washington, D.C.: Community College Press

Schalock, D. H, Schalock, M., & Girod, G. (1997). Teacher work sample methodology as used at Western Oregon State College. In J. Millman, (Ed.), *Grading teachers, grading schools: Is student achievement a valid evaluation measure?* (p. 15-45). Thousand Oaks, CA: Corwin Press Inc.

Stronge, J.H., & Tucker, P.D. (2000). *Teacher evaluations and student achievement.* Arlington, VA: National Education Association.

Wallin, D. L. (2004a).Valuing professional colleagues: Adjunct faculty in community and technical colleges. *Community College Journal of Research and Practice, 28*, p. 373-391.

Using Digital Games to Improving Access and Learning

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Abstract: There is a significant opportunity to incorporate interactive, immersive 3D simulations to invigorate education and make learning more engaging. This can reduce overall cost for laboratories and increase access to learning materials. An inner-disciplinary team from media arts, engineering, and computing have worked together to create a process for improving access and learning using digital games and simulations. We consider the design, implementation, and aesthetics of the digital learning games that our students use. Our test-bed environment involves an engineering laboratory, but our process and lessons learned are applicable to a variety of fields. We show that learning must be engaging and map to existing student contexts, that simulations can save cost and improve access and learning, and that the metacognitive ability for the student to control the learning environment (via simulation) allows them to learn through success and failure. All of these are critical to achieve deep learning that transcends the classroom. Our positive results in freshman-level courses encourage us as we extend this project into other disciplines and more advanced levels of study. These games for learning are freely available via the Web.

Literature Review

Learning must be personally meaningful, related to the real-world outside of school, provide opportunities to think in the modes of the discipline, and allow assessment to reflect the learning process (Shaffer, 1999). When this is accomplished, engagement, learning, and deep understanding will occur. Additionally, the educational context is changing because students enter higher education with varied and different expectations and experiences. Successful strategies to attract and retain students include hands-on and integrative experiences in the first year, emphasis on the social relevance of the content, providing service learning opportunities, and supporting collaboration among students in and outside the classroom (National 2007).

Students need a foundation of factual knowledge and a strong conceptual framework to develop competence. To truly acquire knowledge and mastery, students must transform facts into usable knowledge. We can enhance this by helping students monitor their understanding and progress in problem solving; such a "metacognitive" approach to instruction can help students take control of their own learning and established goals and monitor progress in achieving them (National 1999). This is similar to solving puzzles and completing quests in computer games, and we observe that many college-age players spend vast amounts of intellectual energy to master computer games.

There is clear evidence (Tufte 2001) that well-designed graphics, graphs and animations, increase learning comprehension and streamline information delivery in the education process. Now there is a significant opportunity to incorporate more interactive, immersive 3D simulations to invigorate education and make learning more engaging. Beyond interactive software, there is a wide, fascinating, and growing field of research in the use of computer games in education (Malone 1980). Video games are a significant cultural influence and are useful in improving design strategies, enhancing and motivating learning (Steiner 2006), and increasing the success of job skills training (Greitzer 2007). Utilizing best practices of psychology and motivation theory, games-centric learning environments offer potential to meet the needs of competence, autonomy, and relatedness to enable students' success.

Computer simulations support inquiry-based science instruction and provide virtual laboratory experiences to help overcome constraints such as cost and time to set up the lab. Such simulations allow students to see and interact with scientific phenomena that would otherwise be impossible due to safety or other constraints (National 2011).

Goals and Objectives

Many students are visual learners. This type of student understands complicated concepts by seeing and sometimes doing the experiments they are studying. In the lab, this experience is only partially hands on in the sense that a lab technician sets up and conducts the experiments for the students to witness. The virtual simulation bridges the

limited hands on experience with the ability to alter the testing scenario under different conditions as the student sees fit. Student comprehension is improved both by being in charge of the experiment and by seeing the scenario played out from different perspectives in the animation. Further, the learning environment of an online games-based laboratory is guided by the principles of being learner centered (explicitly supporting a balance between difficulty and reward - a hallmark of game design), being knowledge-centered (emphasizing learning by doing with understanding as key before they are able to advance), being assessment centered (since the computer labs can be monitored and assessment immediately performed with instant feedback), and contextual (as students are familiar with game environments, we leverage this in the learning environment).

By creating an interactive virtual space, students can interact with the experiments an unlimited number of times while engaging the subject matter through a medium similar to video and gaming environments. The interface mimics a game as well as aspects of other virtual environments that have been created for the purpose of entertainment. As Zyda (2005) suggests, "the entertainment component comes first." In other words, to foster critical learning, 3D experienced students, often referred to as "digital natives," need to be engaged on a level that excels beyond data representation.

Discussion

As we explore games-based learning, we are guided by the motivation theory associated with games in education and how this influences learning. We note that simulations are valuable tools for understanding a variety of phenomena and allow users to observe and interact with abstractions of processes that would otherwise be too dangerous or not visible. Challenge, fantasy, and curiosity are the keys to making a game fun, and we see a significant correlation between the ideas of what makes a game fun and what makes a motivating, empowering, and successful games-based curriculum of study.

We have been successful in creating learner-centered service-learning opportunities for our students by engaging their interest in game design and development. We have also replicated an engineering laboratory in a 3D game environment that is accessible via the Web browser. In both scenarios, access to learning has increased and we have seen an increased motivation in our students. Participants in this practice session will learn how to replicate our process of incorporating digital games-for-learning into their classes and in their disciplines.

References

Greitzer, F., Kuchar, O., and Huston, K. (2007). Cognitive science implications for enhancing training effectiveness in a serious gaming context. *ACM Journal of Educational Resources in Computing*, vol 7.

Malone, T. (1980). What makes things fun to learn? Heuristics for designing instructional computer games, *Proceedings of the 3rd ACM SIGSMALL symposium* (pp. 162-169). Palo Alto, CA.

National Research Council. (1999). *How People Learn: Bridging Research and Practice*. Committee on Learning Research and Educational Practice, M. Suzanne Donovan, John D. Bransford, and James W Pellegrino, Eds. Washington, DC: The National Academies Press. 1-4.

National Research Council. (2011). *Learning Science Through Computer Games and Simulations*. Committee on Science Learning: Computer Games, Simulations, and Education, Margaret A. Honey and Margaret L. Hilton, Eds. Washington, DC: The National Academies Press.

National Science Board. (2007). *Moving Forward to Improve Engineering Education.* Education and Human Resouces (EHR) Committee, G. Wayne Clough, Daniel Hastings, and Louis Lanzerotti, Eds. NSF.

Shaffer, D. W. and Resnick, M. (1999). "Thick" authenticity: New media and authentic learning. *Journal of Interactive Learning Research,* 10 (2), 195-215.

Steiner, B., Kaplan, N., and Moulthrop, S. (2006). When Play Works: Turning Game-Playing into Learning, *IDC* (pp. 137-140). Tamperte, Finland.

Tufte, E. (2001). *Envisioning Information*, Graphics Press, Connecticut.

Zyda, M. (2005). From Visual Simulation to Virtual Reality to Games, *IEEE Computer Society*. pp 25-32.

We're All in This Together: The Importance of GTA Training From Orientation Until Graduation

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Abstract: As departments manage the opportunities and challenges of introducing new graduate teaching assistants (GTAs) to the expectations of their positions, developing training opportunities to facilitate their successful transition to the classroom as first time college teachers has become increasingly important. However, while many departments employ GTAs within their programs, formal orientation beyond that provided by the university's graduate school is often limited. This interactive presentation will discuss the weeklong orientation program developed by the Virginia Tech Department of Communication, specifically highlighting the topics covered during our pre-semester orientation, how we incorporate weekly team meetings to offer continued support and explore common challenges, as well as the creation of mentorships between first and second year GTAs. Participants of this practice session will engage in a lively discussion of common scenarios applicable to the initial experience of GTAs across departments and universities, and explore training materials and teaching techniques through various forms of active audience participation. Second year graduate students will give their perspective on the success of orientation and weekly training meetings as preparation for first-time teachers, discussing both their experience as first semester GTAs as well as their newfound role as mentors to the new cohort of GTAs. Additionally, assessment of the training mechanisms from the director's, student's and department's perspectives will also be discussed.

Literature Review

Teaching is not a gift that some people possess as a natural talent (Mistaken Beliefs about Learning to Teach, 2011). As a result, graduate teaching assistants (GTAs) require instruction on the various teaching strategies to manage the classroom and garner learning amongst their students. While some GTAs may begin their positions with an established teaching philosophy and a sense of what it takes to be an effective instructor of college-aged students, most new teachers will need guidance on how to be successful in the classroom.

As departments and their respective basic course directors appoint GTAs to teach stand-alone sections or to lead lab/recitation sessions, the educational goals of the university, the department, and the course must be made known to the GTA. The establishment of a safe and supportive training environment first constructed during orientation will allow for a highly functioning group of new and experienced GTAs. Through the strategic use of training sessions, common teaching and grading pitfalls, fears, and points of excitement can be shared, discussed and managed as a teaching team (Fassett and Warren, 2011).

Furthermore, although many new teachers default to passive learning approaches where the instructor lectures and the students take notes, learner-centered teaching strategies help the GTAs to serve as facilitators of the information (Weimer, 2002). To foster classroom learning, learner-centered teaching strategies can be discussed and modeled throughout GTA orientation and subsequent training sessions.

Description of Practice to be Modeled

This practice presentation examines the techniques used and topics covered when training graduate teaching assistants to teach undergraduates. Incoming graduate students, whether fresh from undergraduate studies or returning to school from the working world, have a lot to process upon entering a graduate program. When they are given the further task of teaching—many for the first time, it is important to train them as effectively as possible, often during a very brief period of time at the beginning of the semester. The new Graduate Teaching Assistants (GTAs) must be socialized to become successful members of the department in a way that will ease the transition, while preparing them for a new job.

In order to facilitate this transition, interactive orientation and training sessions to prepare GTAs are essential. Furthermore, since no two teachers approach a classroom in the same way, having second year students with a

variety of perspectives and teaching styles describe the teaching assistantship position can paint a more complete picture.

Scenarios that second year students can discuss based on their recent teaching experiences include:
1. Following Family Educational Rights and Privacy Act, Honor Code and other university guidelines ,
2. Being friendly versus being a friend to pupils,
3. Impression management, including creating a professional image, office etiquette, use of social media, and encountering students in social situations,
4. Balancing roles as student and a teacher, and
5. Developing a teaching philosophy.

Being able to discuss such real-life examples with those who have recently lived them, and continuing to have these mentors available as resources throughout the year, can significantly ease the transition to a graduate assistantship. It can also add an interactive element to training sessions that extends outside of the training itself. Especially due to time constraints during training, such mentoring relationships can provide guidance that may be vital to graduate teaching assistants' success, both as teachers as well as students, and can strengthen graduate programs as a whole.

Goals & Objectives

Upon completion of this session, participants will understand:
1. How to plan and implement an orientation/training session for new graduate teaching assistants,
2. How to address common questions, fears, and pitfalls of new GTAs,
3. How to discuss the importance of being a professional representative of their department,
4. How to make training interactive for trainers and trainees,
5. How to implement a mentorship program between new and veteran graduate teaching assistants in order to maintain support beyond orientation,
6. How to build an effective teaching team for the respective department,
7. How to address ethics in teaching and grading, and
8. How to evaluate training for strengths and opportunities.

Discussion

This practice presentation examines the preparation and execution of the Virginia Tech Department of Communication's GTA orientation program and the building of team collegiality throughout the school year. More specifically, it explores the methods of making GTA training and orientation interactive and engaging, addressing common questions and concerns of new GTAs, and evaluating the effectiveness and thoroughness of the training program. Additionally, it will uncover the role and importance of incorporating veteran GTAs during orientation and the benefits of creating mentorships. The interactive nature of this presentation coupled with the universal nature of many orientation topics allows individuals from various departments and universities to participate in a discussion of strategies used to acculturate GTAs into their new positions and programs, and specific strategies for fostering a productive teaching team. Individuals will leave the presentation with insight into different techniques and tips for enhancing their own orientation programs or be more aware of the building blocks for creating one.

References

Fassett, D. & Warren, J. (2011). *Coordinating the Communication Course: A Guidebook*. New York: Bedford/St. Martin's.
Parini, J. (2005). *The Art of Teaching*. New York: Oxford Press.
Preston, M., Giglio, J., & Kristin English. (2008). Redesigning Public Speaking: A Case in the Use of Instructional Design to Create the Interchange Model. *Basic Communication Course Annual*. 20, 138-173.
Ross, C. & Dunphy, J. (2007). *Strategies for Teaching Assistant and International Teaching Assistant Development: Beyond Micro Teaching*. San Francisco, CA: Jossey-Bass, A Wiley Imprint.
Tomorrow's Professor eMail Newsletter: Tomorrow's Teaching and Learning. (2011). "Mistaken Beliefs about Learning to Teach." Retrieved from http://cgi.stanford.edu/~dept-ctl/cgi-bin/tomprof/postings.php
Weimer, M. (1993). *Improving Your Classroom Teaching*. Newbury Park, CA: Sage Publishing.
Weimer, M. (2002). *Learner-Centered Teaching*. San Francisco, CA: Jossey-Bass, A Wiley Imprint.

Wiki Pedagogy: Using Wikis to Promote "Integration of Learning"

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Abstract: Integration of learning is the ability to connect, apply, and/or synthesize information, knowledge and skills across varied contexts. The ability to integrate learning is a highly desirable outcome of higher education, and an increasingly sought after skill in the job market. Wikis are easily editable websites that allow multiple users to create sites that link content to any number of internal or external sources. The flexibility of the wiki format makes it an ideal tool for facilitating collaboration and promoting integration of learning. This presentation will demonstrate how a how a wiki can be used to promotes integration of learning for college students, using a sample wiki from a summer 2011 study abroad course. During the course, students used the class wiki for a number of tasks, including writing both individual and co-authored essays, reviewing and contributing to one another's work, connecting in-class discussions to out-of-class field excursions, and capturing personal reflections on field experiences. The pedagogy and tools have broad applicability in a variety of higher education settings, both classroom-based and experiential.

Literature Review

A wiki is an easily editable website, a tool first introduced in 1994 by Ward Cunningham; the term "wiki" is the Hawaiian word for "quick" (Leuf & Cunningham, 2001). This technology has been used in educational settings as a teaching tool, assessment instrument, and vehicle for collaboration (Augar, Raitman & Zhou, 2004; Parker & Chao, 2007; Ramanau & Geng, 2009). The wiki format allows students to effortlessly link to content within the wiki itself, as well as external sites, facilitating crossing contexts and disciplinary boundaries, and creating an opportunity for the integration of learning. Wikis are increasingly available to college educators and learners at no cost, via campus-based instructional technology services and course delivery software packages such as Blackboard and Moodle.Integration of learning is the ability to "connect, apply, and/or synthesize information coherently from disparate contexts and perspectives, and make use of these new insights in multiple contexts" (Barber, 2009, p. 13). For example, integration may include linking ideas and philosophies to the everyday experience, connecting one field of study or discipline to another, bridging the past to the present, or combining multiple identity roles. The ability to make connections and meaningfully synthesize concepts has become an essential skill for success in the knowledge economy of the twenty-first century (AAC&U & Carnegie Foundation, 2004; Huber & Hutchings, 2004; Keeling, 2004). The wiki format allows learners to connect, apply, and synthesize concepts easily using an assortment of media: web links, photos, text, video, and audio. As such, a wiki can be utilized in higher education settings to promote students' integration of learning in a way that is both interdisciplinary (Boix Mansilla, 2005; Lattuca, 2001) and intercontextual. The wiki also allowed students to readily incorporate personal reflection, communication, photographs, etc. and make the material meaningful to them. Situating learning in the learners' lived experience in this way has been identified as a way to enhance student learning and promote student development (Baxter Magolda, 2001).

Goals and Objectives

Participants in this session will learn how to develop curricula that use wiki spaces to promote integration of learning for college students. Using the main integration of learning categories (connection, application, and synthesis) as a framework, participants will learn how to create assignments that capitalize on the strengths of the wiki format. Participants will share personal best practices with collaborative technology, and brainstorm ways in which the wiki format could be valuable for student learning in contexts different than the one exemplified in the session. Participants will also gain hands-on experience editing a wiki. The insights from our discussion will be captured on the session wiki; participants who have a laptop or mobile device can edit the wiki during the program, and others can access and contribute after the fact. The wiki will include all presentation materials and references, and be available as a resource to participants even after the conference concludes.

Description of Exemplified Practice

This presentation will explore how a wiki can be used in university course to promote integration of learning, using the example from a study abroad course taught in summer 2011. The main assignment for the course was created solely on the wiki. For this assignment, students wrote a 2500 word "paper" on a topic of their choosing related to the course topic. Rather than submitting a stand-alone document for the professor's eyes only, students drafted their essays on the wiki throughout the semester, and sought feedback from others in the class as they developed their work. Each student was asked to contribute (defined broadly) to at least one other student's essay. There was a wide range of topics that came together well aground the course theme and highlighted students' diverse interests, collaborative capacity, and interdisciplinary understanding.

Each student was also part of a two-or-three person group that created a wiki page summarizing the main learning points of one of our field experiences, and connecting the excursion to our course material. This assignment encouraged students to integrate their experiences on the excursions with readings, reflections, and discussions.

Discussion

Using a wiki as the core of our course assignments was an excellent way to get students engaged in each other's work, despite initial reluctance to share work-in-progress or offer suggestions to peers. Due to the requirement for students to contribute to one other student's essay, I knew that students were reading and learning about (at least) one other topic. From a time management perspective, the wiki collaboration allowed me to preserve valuable class time for discussion, rather than a series of one-directional student presentations. I was impressed to see some of the students draw closer connections and link to other students' work (e.g., for more on X, see Mary's essay here...).

For the group-written field excursion pages, I intentionally encouraged the students to include personal reflections. They readily incorporated their own photos, journal entries, etc. in a way that allowed them to connect their lived experiences to the course material in a very dynamic way. As a teacher, it was interesting for me to see how the students interpreted the field experiences, and how they linked our travels to in-class work.

As college teaching and learning increasingly ventures beyond the four walls of the traditional classroom, educators need strategies to guide students in integrating experiences, knowledge, and identities. The wiki format allows students to link disparate information and cross boundaries more easily in ways that are not possible in more traditional, non-networked assignments such as stand-alone research papers, or individual PowerPoint presentations. Although the example course was in the context of a study abroad, the pedagogical approaches and technological tools can be applied in a wide variety of higher education settings, both classroom-based and experiential.

References

AAC&U, & Carnegie Foundation. (2004). *A statement on integrative learning*. Washington, DC: Authors.

Augar, N., Raitman, R., & Zhou, W. (2004). Teaching and learning online with wikis. Proceedings of the 21st ASCILITE Conference (pp. 95-104). Perth, Australia.

Barber, J. P. (2009). Integration of learning: Meaning making for undergraduates through connection, application, and synthesis. Ph.D. doctoral dissertation, University of Michigan, Ann Arbor, MI.

Baxter Magolda, M. B. (2001). *Making their own way: Narratives for transforming higher education to promote self-development.* Sterling, VA: Stylus Publishing.

Boix Mansilla, V. (2005). Assessing student work at disciplinary crossroads. *Change*, 37(1), 14-21.

Huber, M. T., & Hutchings, P. (2004). *Integrative learning: Mapping the terrain*. Washington, DC: AAC&U.

Keeling, R. P. (Ed.). (2004). *Learning reconsidered: A campus-wide focus on the student experience*. Washington, DC: National Association of Student Personnel Administrators & American College Personnel Association.

Lattuca, L. R. (2001). *Creating interdisciplinarity: Interdisciplinary research and teaching among college and university faculty*. Nashville, TN: Vanderbilt University Press.

Leuf, B., & Cunningham, W. (2001). *The Wiki way: Quick collaboration on the Web*. Upper Saddle River, NJ: Addison Wesley Professional.

Parker, K. R., & Chao, J. T. (2007). Wiki as a teaching tool. *Interd. J. of Knowledge and Learning Objects*, 3, 57-72.

Ramanau, R., & Geng, F. (2009). Researching the use of wikis to facilitate group work. *Procedia Social and Behavioral Sciences*, 1, 2620–2626.

Wikis as Platforms for Authentic Assessment

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Abstract: This session will review the practice of using wikis to assess student learning through authentic assessments. It will provide background on this teaching strategy and provide examples of how to use this platform for course assignments to assess student learning. Participants will be asked to share examples from their own practice.

Literature Review

The process of assessing student learning is inextricable from the process of teaching. In this age of accountability, assessment of student learning becomes increasingly critical for faculty and college leaders (National Commission on Accountability in Higher Education, 2005). Authentic assessment (Mueller, 2005; Wiggins, 1990) provides a mechanism for evaluating student learning using real life applications. Dewey (1916) and Knowles (1980) both posited that knowledge building is experiential and that learning occurs when new information can be tied to student experiences. Authentic assessment is an instructional strategy that couples real word application with the evaluation of student learning. Traditional assessments (e.g. multiple choice tests) tend to encourage students to "recall" essential course "content," but authentic assessments encourage students to apply the content to "be effective performers with acquired knowledge" (Wiggins, 1990, ¶ 3). In a review of 49 case studies of effective institutional assessment practices in higher education, Banta, Jones, and Black (2009) found that each of 49 institutions studied used locally developed assessment measures (e.g. rubrics for papers, collaborative projects, capstone requirements) in addition to more objective forms of assessment such as standardized tests. Matching the assessment to the learning context provides authentic links between student learning and application of knowledge to practice.

Authentic assessments require students to perform or complete "real world tasks" that connect the course content with the students' lived experience (Mueller, 2005). Studies of more traditional assessments (paper pencil multiple choice tests) in teacher education programs, for example, indicate little predictive validity in teacher ratings or classroom effectiveness (Darling-Hammond, 2000). Mueller (2005) and Darling-Hammond (2000) both offer several tools for constructing authentic assessments: case studies, inquiry based problem-solving projects, portfolios, collaborative content building and publishing, and artistic production and performance, to name a few. Angelo and Cross (1993) provide numerous examples of how to employ Classroom Assessment Techniques (CATs) that provide instantaneous feedback to students and faculty alike.

Wikis provide one tool for supporting authentic assessment in the college classroom. The wiki tool in and of itself is neither "authentic" nor an "assessment." Rather, it is *how* the instructor uses the wiki that creates platforms for authentic assessments. From individual portfolios to professional toolkits to collaborative class projects, wikis provide a simple method for publishing content to the web. Thus, wikis can provide a bridge between classroom learning and audience. Additionally, the potentially social nature of the collaborative space provides a means for scaffolding socially constructed knowledge (Barton & Cummings, 2008).

Description of Practice Focus

The focus of this session is on how to use Wikis as a platform for authentic assessments in the college classroom. We define authentic assessment broadly to include those tasks which both measure and/or display student learning while at the same time replicating or supporting a discipline-specific real world task based on experiential learning. Wikis can support authentic assessments in the form of individual writing portfolios, living CVs with linked artifacts, virtual meeting spaces for group work, and individually or collaboratively authored multi-media web content, to name a few.

The information presented in this sessions reflects how faculty have used wikis as part of classroom learning and course assignments and how the resulting wikis have allowed enhancements to assessing student learning. Specifically, this session will explore how wikis are used to support teacher preparation and school administrator degree programs as a capstone requirement. Additionally, faculty will share examples of instructional uses of wikis

to support collaborative knowledge construction in graduate level education courses. This session will also review strategies for evaluating both individually and collaboratively authored wikis. The session will culminate in a question and answer discussion of some of the challenges and strategies for implementing authentic assessments and wikis into college teaching.

Goals and Objectives for the Practice Session

The session is designed to be highly interactive and has the following learning objectives:
1. To define the concept of authentic assessment,
2. To discuss best practices for how to employ authentic assessment in classroom teaching, using wikis as a teaching platform,
3. To identify key learning outcomes for a course assignment using a wiki platform, including the importance of evaluating the process of the collaborative exercise and the creation of content, and
4. To review the challenges of employing authentic assessment and student resistance to collaborative projects.

The session will be structured as follows:
- *10 minutes* - Introductions and identification of participant experiences with authentic assessment and with wikis
- *10 minutes* - Review of the literature on authentic assessment and best practices using wikis
- *20 minutes* - Shared wiki classroom examples of authentic assessment, and discussion of applications and best practices
- *10 minutes* - Discussion of applications in various disciplines and question and answer session. Take away reference list

Discussion and Conclusion

Faculty continue to investigate their practice to improve learning opportunities for students. Wikis provide one mechanism to authentically assess student learning. As with any new technology, faculty must assess how the technology adds to student learning versus merely substituting for a modern version of an inadequate tool. Clear learning objectives and evaluation measures help provide students with a framework of how their real world work on a wiki has a broader audience beyond a single faculty reading their paper. The benefits of the process and the skills acquired can contribute to enhanced student learning and ultimately help prepare students with the skill base required in our changing, complex world. By interrogating their own teaching practices, faculty can contribute to the scholarship of teaching to advance knowledge on how authentic assessment can improve student learning.

References

Angelo, T. A., & Cross, K. P. (1993). *Classroom assessment techniques: A handbook for college teachers*. San Francisco: Jossey-Bass Publishers.

Banta, T., Jones, E., & Black, K. (2009). *Designing effective assessment: Principles and profiles of good practice*. San Francisco, John Wiley & Sons.

Barton, M., & Cummings, R. (Eds.). (2008). *Wiki writing: Collaborative learning in the college classroom*. Ann Arbor, MI: University of Michigan Press.

Darling-Hammond, L., & Snyder, J. (2000). Authentic assessment of teaching in context. *Teaching and Teacher Education*, *16*(5-6), 523-545.

Dewey, J. (1916). *Democracy and education*. New York: McMillan.

Knowles, M. S. (1980). *The modern practice of adult education*. New York: Cambridge, The Adult Eduction Company.

Mueller, J. (2005). The authentic assessment toolbox: Enhancing student learning through online faculty Development. *Journal of Online Teaching and Learning, 1* (1).

National Commission on Accountability in Higher Education. (2005). *Accountability for better results: A national imperative for higher education*. State Higher Education Executive Officers.

Wiggins, G. (1990). The case for authentic assessment. *Practical Assessment, Research, & Evaluation*, 2(2).

Wikis, Blogs, and Face-to-Face Conferencing: Coaching Diverse Students in Differentiated Settings

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Abstract: This practice session will explore ways university instructors can offer choices to students as they construct conceptual understandings of course concepts. These varied strategies support students as they process understandings, collaborate with others, and demonstrate their learning. Such differentiated approaches support students that have varied comfort levels and experiences with current technologies, offering a safe environment for students to risk success with digital tools such as wikis, blogs, and e-portfolios while still coaching in individual or small group traditional conferences.

Literature Review

Dewey (1938) shares that real understanding comes from individual knowledge construction. Cognitive Flexibility Theory (Spiro, Coulson, Feltovich, & Anderson (2004) suggests that learners gain enduring understandings when material is presented in many ways and in multi-modes. Researchers in Multiliteracies (New London Group, 1996) suggest that classroom teachers harness the power of Web 2.0 technologies in order to meet students in learning spaces that are familiar to them, such as social networking spaces. Secondary teachers have shared that students are engaged when New Literacies (Kist, 2005) offer them spaces to collaborate and create to meet individual learning needs (Kajder, 2010; Richardson, 2009). Differentiated classrooms (Tomlinson, 2001) allow individualized learning environments that create both familiar learning spaces (Dredger, Woods, Beach, & Sagstetter, 2010; Moll & Greenberg, 1990) and move students in new directions for essential growth in content skills.

Goals and Objectives

This session will offer participants a look into a workshop (Atwell, 2003) atmosphere where students work with content of their choice punctuated by mini-lessons and organized around common themes. Students are able to choose their deadlines, thus differentiating the process of learning. Students conference face-to-face with instructors while determining products that demonstrate learning in an area of interest. Students share their constructed knowledge in electronic form, such as a wiki, in the spirit of shared knowledge, and this also becomes a practical way to house files, projects, and notes so that students can access them and continue to add to this shared knowledge approach well after the course as students go into the field post graduation. Because of this individualized approach to knowledge instruction, students do not work in a lock-step fashion and as such, instructors assess learning informally through blog posts, tweets, and e-portfolio construction, while requiring face-to-face coaching sessions tailored for each student. Session participants will be given access to course wikis so that they can experiment with their ease of use. After session participants view the products of such a classroom, they will then hear of student perceptions of the process, as students do express some discomfort with the non-traditional approach. Instructors share how they have mitigated this discomfort so that students learn to appreciate the freedom to individualize their own instruction with a mentor in an apprenticeship atmosphere and how students rate instructors highly on Perceptions of Instruction instruments. Participants will be able to ask questions to determine how this could be tailored to meet different content areas.

Description of the Practice

Teaching Adolescent Readers is a course that both models and explicates best practice pedagogy in the teaching of adolescents. Preservice teachers, MAED candidates at Virginia Tech, are immersed in a workshop approach where the only whole-class teaching occurs in short mini-lessons. Students are encouraged and supported in making a plan in their own inquiry, organized by text themes, and then reading, exploring, and sharing their knowledge through wiki construction (see Figure 1), blogs, tweets, e-portfolios, class sessions, and face-to-face conferencing. The final product of the course is a shared creation, a wiki, that students continue to access well after finishing the course. Three-hour classes are used for sharing and extending knowledge by all of the class members, not just the teacher.

Work time for this learning usually comprises three hours outside of class and consists of project creation and publishing, reading, mining internet resources, and carefully chosen course texts that probe both theoretical and

practical knowledge. Face-to-face coaching sessions are about 20 minutes in length and often occur off campus, at local coffee shops, to encourage a congenial relationship and a shared understanding that knowledge is not held by professors alone.

Figure 1. Sharing knowledge through wiki construction

Discussion

The issue of differentiated classrooms means honoring the learning styles of students in new ways. While this benefits the students individually, Cognitive Flexibility Theory suggests that the varied formats and styles of learning is more conducive to enduring understandings on the part of the learner. With the power of Web 2.0 technologies, students can access more knowledge that meets their needs, and the environment in the classroom becomes one of many teachers instead of just one.

References

Dewey, J. (1938). *Experience and* education. New York: Mcmillian.

Dredger, K., Woods, D., Beach, C., & Sagstetter, V. (2010) Engage me: Using new literacies to create third space classrooms that engage student writers. *Journal of Media Literacy in Education (2)*2.

Kajder, S.B. (2010). *Adolescents and digital literacies:* Learning alongside our students. Urbana, IL: NCTE.

Kist, W. (2005). *New literacies in action*. New York: Teachers College Press. Moll, L. & Greenberg, J. (1990). Creating zones of possibilities: Combing social contexts for instruction. In *Vygotsky and Education* (L. Moll, Ed.). New York: Cambridge University Press, 319.

Monroe, B. (2004). *Crossing the digital divide: Race, writing, and technology in the classroom*. New York: Teachers College Press.

New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review 66*(1), 60-92.

Richardson, W. (2009). *Blogs, wikis, podcasts, and other powerful web tools for classrooms*. (2nd ed.) Thousand Oaks, CA: Corwin Press.

Spiro, R.J., Coulson, R.L., Feltovich, P.J., & Anderson, D.K., (2004). Cognitive Flexibility Theory: Advanced knowledge acquisition in ill-structured domains. In R.B. Ruddell & N.J. Unrau (Eds.), *Theoretical models and process of reading* (5th ed.). pp. 640-653). Newark, DE: International Reading Association.

Tomlinson, C.A. (2001). *The differentiated classroom: Responding to the needs of all learners.* 2nd ed. Alexandria, VA: Association for Supervision and Curriculum Development.

Witte, S. (2007). That's online writing, not boring school writing: Writing with blogs and the talkback project. *Journal of Adult and Adolescent Literacy, 51*(2), 92-96.

Writing Beyond the Classroom: Blogging as a Medium for Citizen Engagement

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Abstract: This practice session will demonstrate the ways that blogging can facilitate student civic engagement and create opportunities to enhance student creativity and academic rigor. Effective blogging assignments require students to construct audience-centered arguments tailored to engage a real public not often present in the traditional classroom environment. Blogging stimulates a collaborative learning environment in and beyond the classroom setting.

Literature Review

Virtually all universities today have formal mission statements that are designed to capture the uniqueness of the institution to aid in recruitment, marketing, and fund-raising. However, whether stated formally or not, all universities have the goal of helping students develop into leaders who can clearly articulate ideas verbally and in writing. While both public speaking and writing scholarly papers are emphasized and enhanced across college curriculum, writing in public and for the bigger audience is, for the most part, left for students to learn and master on their own. We argue that course blogging as an educational technology can fill in this gap and introduce students to writing in public and for the public. Through blogging, students expand their sense of community, audience and are exposed to make ethical choices in terms of content, comments, and multimedia use.

Educational blogs have been used across disciplines for various pedagogical purposes. Recent research documents many benefits of using blogging as a teaching and learning tool in higher education. Academic blogs provide a medium for reflection and engagement with the course content (Granberg, 2010; Joshi & Chugh, 2009). Students demonstrate greater engagement with course content and deeper critical thinking through their blogging activities. Blogging also can serve as a communication tool between students, allowing discussion of course content outside of the classroom (Xie, Ke, & Sharma, 2010). Furthermore, blogging can provide students an opportunity for peer review of others' work. Ultimately, research demonstrates the benefits of blogging as means for developing a learning community that extends beyond the classroom (Hodgson & Wong, 2011; Halic, Lee, Paulus, & Spence, 2010).

In addition to the pedagogical benefits of blogging documented in the research, the experience of the presenters in using blogging in a variety of types of classes and assignments suggests that this medium is particularly beneficial in helping students learn to write for a public audience. Students learn to write beyond the classroom, being sensitive to presenting information in a creative, engaging, clear, and concise manner. Along the way, students learn to pay attention to the style and voice of their writing, the theme or purpose of their writing, and how to ethically integrate a variety of information sources.

Goals and Objectives

Upon completion of the session, participants will be able to:
- Develop effective blogging assignments that allow for student creativity and promote academic rigor,
- Balance faculty workload with the incorporation of this writing intensive assignment,
- Understand the pedagogical value of blogging to enhance student engagement and critical thinking,
- Consider the factors that impact the success and limitations of blogging for the public, and
- Understand the ethical considerations necessary for writing for the public.

Description

Presenters will briefly summarize the scholarly literature on blogging and pedagogy in higher education. Focusing on citizen engagement, we will discuss how blogging can provide a platform for students to interact with a variety of different audiences. Presenters will discuss how the public nature of blogging helps students to hone their critical thinking, writing and information literacy skills, and will address how to develop blogging assignments that

challenge students to write for a variety of audiences. The benefits of blogging to promote a shared learning experience among students also will be addressed.

Building on the practical framework for student bloggers and educators formulated by Kerawalla, Minocha, Kirkup, and Gonole (2008, p.39) and based on the lessons learned through personal experience using blogging in a variety of different assignments, we will lead the participants in a discussion on how to incorporate blogging into their course curriculum.

Discussion Questions

1. What obstacles, challenges and frustrations have faculty faced with blogging?
2. What opportunities has blogging created in your learning environment?
3. How can student blogging inform and educate a larger public?

References

Granberg, C. (2010). Social software for reflective dialogue: Questions about reflection and dialogue in student teachers' blogs. *Technology, Pedagogy and Education, 19*(3), 345-360.

Halic, O., Lee, D., Paulus, T., & Spence, M. (2010). To blog or not to blog: Student perceptions of blog effectiveness for learning in a college-level course. *Internet and Higher Education, 13*, 206-213.

Hodgson, P., & Wong, D. (2011). Developing professional skills in journalism through blogs. *Assessment & Evaluation in Higher Education, 36*(2), 197-211.

Joshi, M., & Chugh, R. (2009). New paradigms in the teaching and learning of accounting: Use of educational blogs for reflective thinking. *International Journal of Education & Development using Information & Communication Technology, 5*(3), 1-11.

Kerawalla, L., Minocha, S., Kirkup, G., & Conole, G. (2009). An empirically grounded framework to guide blogging in higher education. *Journal of Computer Assisted Learning, 25*(1), 31-42.

Xie, Y., Ke, F., & Sharma, P. (2010). The effects of peer-interaction styles in team blogs on students' cognitive thinking and blog participation. *Journal of Educational Computing Research, 42*(4), 459-479.

Poster Sessions

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A Foundation Design Pedagogy and Rationale

Shabnam Kavousi & Patrick A. Miller, *Landscape Architecture, Architecture and Urban Studies, Virginia Tech*

As landscape architecture students progress through their pre-university education, they become very good at following recipes, "Tell me what to do and I will do it well." However, when it comes to learning design in architecture and landscape architecture there is no recipe. A somewhat unique pedagogy for foundation design has been developed at Virginia Tech that in some instances goes against accepted beliefs and practices at many universities. For example, answering questions with questions, not telling a student what is wrong with their work, not grading individual projects or sheltering the design studio from the rest of the university. It is not written down, but is loosely embraced by those who teach foundation design. A new faculty person obtains an understating of this pedagogy by apprenticing with (i.e. teaching with) a faculty person who understands the pedagogy. The purpose of this project will be to reveal and document this pedagogy and offer hypothetical reasons, based on the education literature, for why it might work. The poster presentation starts with a literature review, consisting primarily of the proceedings of the National Conference on the Beginning Design Student (NCBDS) and papers written by a former dean of architecture at Virginia Tech, Charles H. Burchard. This presentation draws upon qualitative approaches to trace the development of the foundation design pedagogy over the last 50 years. An observational study was conducted over a semester and instructors were interviewed. While these findings are based on observations at only one university, they are sufficiently provocative to challenge the audience to reflect upon accepted teaching practices. The resulting information could go a long way towards establishing a foundation design education model that will contribute to the enrichment of students' overall design thinking and learning.

A Preceptorship Handbook as a Useful Reference in Mentoring BSN Senior Students

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Nurse preceptors play an important role in the transition of the nursing students from classroom to clinical practice; however, many preceptors feel lack of confidence due to inadequate preparation for the role of preceptor (Pennington, 2008; Smedley, Morey & Race, 2010). A study looking at the educational needs of nurse preceptors would be invaluable to academic educators as they choose strategies and develop content for a handbook to serve as a quick reference during the preceptorship period. Thus, the mentorship experience for preceptors would be enhanced by incorporating the needs and preferences of the preceptors into their training and resource materials.

References
Pennington, D. (2008, December*). Essential Components of Clinical Preceptor Education Program*. Clinical poster session presented at Nurse Faculty/Nurse Executive Summit in Scotsdale, Arizona.
Smedley, A., Morey, P. & Race, P (2010). Enhancing the knowledge, attitudes, and skills of preceptors: An Australian perspective. *The Journal of Continuing Education in Nursing, 41*(10), 451-461.

A Professional Learning Group:
How to Stimulate Learners' Engagement in Problem Solving

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Literature and research reports provide evidence about the importance of social context for the learning process. Social justice educators discuss the importance of active learners (Freire 1970). Restorative practitioners point to the importance of support and working with individuals rather than to or for (McCold and Wachtel, 2004). We propose a Professional Learning Group as a tool for problem solving and brainstorming by engaging learners in active supportive peer process in higher education. Creating a safe consistent and predictable environment encourages the learners' voice to be heard and a community to be developed. As a result of our experience and practice, teaching in higher education, this practice session will present and model the professional learning group and discuss strengths and weaknesses of the process.

References

Freire, P. (1970). *Pedagogy of the oppressed*. New York, NY: The Continuum Publishing Company.

Wachtel, T., & McCold, P. (2000). Restorative justice in everyday life. In J. Braithwaite & H. Strang (Eds.), *Restorative Justice in Civil Society* (pp. 117-125). New York, NY: Cambridge University Press.

Academic Dishonesty and Visual Plagiarism

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Academic dishonesty is increasingly becoming a hot topic for administrators and professors alike—particularly as a result of the ease in which students can access information. One can see from the startling statistics that academic dishonesty is a problem that needs to be contended with. Furthermore, when educational institutions discuss concerns with plagiarism, textual plagiarism is what is generally brought to the forefront, which in all probability is due to it being more easily understood and identified. Many times, visual plagiarism is neglected. To compound the problem, institutional policies vary in their approaches to academic dishonesty, and even vary between departments and colleges within the same university. This poster presentation explores the issues colleges and universities are faced with when dealing with academic dishonesty as well as defining and clarifying visual plagiarism. Presented in the presentation are various approaches that aid in establishing a climate in which high standards may flourish. The legal and moral aspects of visual plagiarism are also highlighted.

Published solutions have included the use of technology, better policies, policing and punitive measures, educational sessions, and the dynamics of cultural change. Historical case studies and past research are introduced in this presentation to promote discussion about the definition of visual plagiarism. Different perspectives are presented to help redevelop methodological solutions appropriate for the academic environment.

Academic Literacy in ESP Instruction: Promoting Teachers' Autonomy and Decentered Authority

Osman Barnawi, *English, Yanbu Industrial College*

The field of English for Specific Purposes (ESP) is burgeoning in that it is parallel to the development of science, business, medicine and technology. Such a constant development, indeed, has resulted in the emergence of new pedagogies, new purposes, and multiple genres in the academia that teachers need to master in order to function well in their classrooms. Given the new challenges confronting teachers in ESP instruction, the pedagogical task of deciding which genres, literacies and pedagogies teachers need to master in order to make enough contribution to the development of cognitive academic language proficiency (CALP) (Cummins, 1980) for their students is a daunting one. Informed by the theory of critical literacy, this paper argues that promoting "*critical awareness of how genres operate*", and how learning and literacy are evolving "*so that they [ESP teachers] . . . learn the new genres [literacies and pedagogies] they encounter with rhetorical and ideological understanding*" (Devitt, 2004 p. 194) should be valued as effective pedagogical strategies for ESP teachers, instead of urging the latter to master specific genres, literacies and pedagogies that are subject to change.

To achieve this end, it is essential that collaborative action research among ESP teachers, science and business faculty members, and employers should be carried out, as a way of helping ESP teachers to track, realize, and describe the evolving forms of learning and literacy associated with the constant changes of science, technology and business. The argument is that literacy should be seen as "*social practices*" operating at the "*level of epistemology and identities*" (p. 34). And such social practices involve "*talk, action, interaction, attitudes, values, objects, tools, and spaces*" (Gee, 1996, p. 3) which are the nature of collaborative action research. More importantly, the interaction, discussion and negotiation that occur among educators during the collaborative action research would help them address questions concerning the transferability of language skills from academic to professional contexts which are seldom raised in the field of ESP instruction. Simply stated, this paper will suggest that collaborative action research among ESP teachers, science and business faculty members, and employers should be seen as an alternative model that would help ESP teachers not only to trace and realize the drastic development of the field of ESP instruction, but it would allow them to practice their teaching and learning tasks constructively.

References
Cummins, J. (1980). The Entry and Exist Fallacy in Bilingual Education. *NABE Journal*, 4, 25-59.
Devitt, A. (2004). *Writing genres*. Carbondale, IL: Southern Illinois University Press.
Gee, J. (1996). *Social Linguistic and Literacies: Ideology in Discourse*. London: Falmer Press.

Adapting to 21st Century Learning in Higher Education

Mollie Blythe, *Animal and Poultry Science Undergraduate Student, Virginia Tech*
Thomas W. Broyles, *Agricultural and Extension Education, Virginia Tech*

As rapid changes continue to take place in the workforce, higher education institutions must prepare students for the skills employers' desire. Moreover, as the types of students entering higher education continue to evolve, institutions need to evolve their teaching strategies to best engage the students. Therefore, the purpose of the research was to determine faculty perception of a 21st century learner and how are faculty adapting to the 21st century learner? The researchers selected a qualitative approach to best address the questions using semi-structured interview methodology. Five participants from three colleges were purposefully selected based on the following criteria: teaching award recipient, class size, and diverse disciplines. The researchers conducted two audio-recorded interviews with each participant. Audio recordings were transcribed and validated by the participant. Constant comparative analysis was used to analyze the coded data. Codes were synthesized to develop themes and form conclusions. Based on the results, the participants perceive 21st century learners as individuals grounded in the use electronics and technology. The participants also referred to 21st century learners as "multi-taskers", however, the participants noted that multi-tasking has positive and negative implications for learning. In addition, the participants perceived 21st century learners as rude and selfish with a sense of entitlement. Participants stated that in order to adapt their current pedagogy to the 21st century learner, learners must first adapt to the faculty's pedagogy. Participants also stated that they included updated technology in their lectures. Using interactive media and dialogue with questioning encourages student engagement. As student engagement increases, students have more opportunities to begin to think critically and engage in learning beyond the classroom.

Adaptive Concept Maps as a Way to Promote Conceptual Understanding in Digital Textbooks

Jacob Moore, *Department of Engineering Education, Virginia Tech*
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As digital textbooks become more common, it is important to reexamine the role of the textbook in learning and how the tool can best utilize its new digital form. Expert-generated concept maps have shown promise as a way to visually organize information in a digital repository, enhancing conceptual understanding for the students who use the tool (Shaw, 2010). Concept maps face problems with scalability, however, losing their effectiveness as learning tools once maps become larger than about thirty nodes. This drop-off in effectiveness, labeled "map-shock" (Blankenship & Dansereau, 2000), prevents the learner from fully processing the concept map and therefore prevents learning from occurring. The authors created a concept map of all topics in engineering statics and found 114 separate ideas that would correspond to 114 separate nodes in a concept map of the domain of engineering statics. In order to use an expert-generated concept map to organize and navigate information in an engineering statics digital textbook, map-shock needs to be eliminated. The authors propose an interactive visualization tool to combat map-shock, unlocking the potential of expert-generated concept maps for organization and navigation systems for full-scale textbooks. This visualization tool seeks to manage the cognitive load of the user, presenting only the most relevant information for the user's current focus and presenting the information in a meaningful and easy-to-process way. The design of the tool pulls heavily from the field of information visualization (Ware, 2004) in order to accomplish this goal. This poster presents the design process for the adaptive map tool and a working prototype of the finished adaptive map tool with engineering statics content.

References
Blankenship, J., & Dansereau, D. (2000). The Effect of Animated Node-Link Displays on Information Recall. *The Journal of Experimental Education*, *68*(4), 293-308.

Shaw, R.-S. (2010). A Study of Learning Performance of E-learning Materials Design With Knowledge Maps. *Computers & Education*, *54*(1), 253–264.

Ware, C. (2004). *Information visualization: perception for design*. Morgan Kaufmann.

Advanced Assessment in Blackboard: Exploring New Test Building Possibilities

Olga Nosova, *Humanities & Arts, Rappahannock Community College*

In the environment of fast growing online education, the computerized assessment is in greater demand than ever. It is time and cost efficient, and its format perfectly fits the very nature of distance education. At the same time, the evolution of programmed testing has been rather slow. Too often the tests do not reflect the possibilities of modern-day instructional technology. For example, the tools for constructing advanced assessments, provided by such course management platforms as Blackboard, are not always used by the courseware designers to their full potential. This presentation focuses on the technological possibilities and pedagogical aspects of building tests in the Blackboard CMS. It demonstrates the various types of questions, creative modifications of the same type of question (e.g., Multiple Choice), as well as elaborates on a number of techniques and tips, including the use of multi-media. At the same time, the emphasis of presentation will be placed on pedagogical rational for different types of questions. A presenter also intends to stimulate a discussion about the ways of bringing more educational value to computerized tests. While being developed for the art history courses, the suggestions on test building are of a general nature and can be applied to other subject areas.

America: Africa Project – Connecting First-Year Scholars With The World

Lisa K. Nardi & Monica N. Turner, *Faculty Think Tank/Scholars' Studio, Bowie State University*

For many, teaching and learning is seen as a relational process in which the student and teacher must be actively engaged in order to cultivate an environment where learning can take place (Price, 2005). In 2010, through funding from the Walmart Minority Student Success Initiative, Bowie State University developed the Scholars' Studio learning community. Year 2 of the Scholars' Studio implementation is the *America: Africa Project*, which engages first-time freshmen in a year-long learning experience. Students work with faculty to explore, research and develop strategies to address an issue of social and personal concern. Both engage in discussion and activities outside the classroom to seek deeper understanding of the selected problem. The America: Africa Project's specific focus is "Resistance and Reconciliation." With this focus, students critically explore issues of conflict locally and in a given African community. They then select a conflict, develop, and execute a plan to tackle the issue, including submitting proposals for funding. During this process, students build connections, and work to implement their plan locally and in Africa. By the end of the year, students will have a thorough theoretical and practical understanding of topics relevant to their lives and to their global counterparts. This learning community is designed to incorporate "best practices" in higher education and serve as a lab for faculty to test pedagogical practices. The Scholars' Studio challenges students to use the knowledge, skills, and perspectives gained in their courses to make a difference in the world.

References
Price, D. (2005). Learning Communities and Student Success in Postsecondary Education: A Background Paper. MDRC. Retrieved October 2, 2001 from http://www.mdrc.org/publications/418/full.pdf.

An Inductive Analysis of History of Architecture and Interior Design: History of Architecture and Interior Design Notebook

Renee K. Walsh, *Department of Interior Design and Fashion, Radford University*

The history notebook is constructed for the students of the History of Architecture and Interior Design course to construct a comprehensive written and graphic notebook through an inductive analysis of historical styles. This notebook integrates research, analysis, sketching, technology, and applicable summarization of each style

throughout history. Interior Design students are asked to encompass all facets of learning and are challenged to actively learn through logic and creativity. Traditionally taught lecture courses in a visually based learning environment are not adequate in giving students the opportunities to cognitively learn the subject matter being presented. An inductive analysis of history of interior design employs the practical, theoretical, artistic and technical skills of the students. The categories of images will be researched by each student and images and historical information will be obtained to adequately define each style. The student must analyze and dissect historical images to identify the components that define that style. Details of the images will be sketched and labeled to further analyze historical context and contribution to the category. Each style must have a historical synopsis included with each category of the notebook. The format of the notebook can be submitted digitally. The concept of this assignment is to have the student create a holistic approach to understanding the connection between architecture, interior design, furniture and decorative accessories and the external historical factors that define each style. Interior design students must continually go through a process of research, analysis and application to create a successful design. Historical conditions, context and styles have to be fully understood and comprehended to move forward and contribute to the evolution of design.

An Integrated Doctor of Physical Therapy Curriculum: Fulfilling a Growing Community Need

Julia Castleberry, Brent Harper, Renee Huth, Kristen Jagger, Emmanuel John, Alex Siyufy, & Edward Swanson
Doctoral Program in Physical Therapy, Radford University

The projected demand for physical therapists in the New River / Mount Rogers region of Virginia is anticipated to increase 36.1% by 2018 (Virginia Workforce Commission, 2008). Radford University (RU) intends to help meet that demand by implementing a Doctor of Physical Therapy (DPT) program. Development of Physical Therapy programs is governed by the Commission on Accreditation in Physical Therapy Education (CAPTE), the central accrediting agency for entry-level DPT programs. Accreditation is required for licensure and the ability to practice. Currently in the candidacy stage of accreditation, RU's DPT program has experienced overwhelming state and local support for the successful implementation of this program. The program anticipates it will receive full accreditation in the Spring of 2014. CAPTE recognizes the use of Bloom's Taxonomy in the development of physical therapy educational goals due to the profession's demand for mastery of the cognitive, affective, and psychomotor domains. The progression of student learning from foundational knowledge to synthesis of concepts culminates in clinical competence. CAPTE established 66 curricular objectives, each of which requires numerous learning objectives and planned learning experiences, to demonstrate progression towards content mastery. RU's DPT program aims to meet the defined needs of the community/region through the development of autonomous physical therapy practitioners. This presentation provides an overview of the RU DPT curriculum and teaching methodologies designed to meet CAPTE criteria and offer graduates opportunities to cultivate refined clinical reasoning skills, compassion, and a commitment to life-long learning. Graduates fulfill key roles in patient outcomes, quality of life, and health and wellness in our communities. These graduates may also play a role in decreasing the burden of rising medical costs by improving access to autonomous practitioners within our community. Future presentations will demonstrate taxonomic progression within specific content areas in this entry-level DPT curriculum.

References
Virginia Workforce Connection (2008). Occupational employment projections in multiple workforce regions for physical therapists for a base year of 2008 and a projected year of 2018. Retrieved September 22, 2011 from http://www.vawc.virginia.gov.

Assessing Professional Competency During Field Education

David Vance, *Curriculum and Instruction, Virginia Tech*

Professional education graduate programs uniformly require field work, internships, or similar capstone experiences in which students complete their education and demonstrate their "readiness" to enter the professional community of practice (Banta, 2001, p. 10). Learning in the workplace is intended to serve multiple purposes, such as to provide an authentic context for skill development and problem solving, to develop professional skills, to provide for initiation into and socialization in a community of practice, and to provide motivation for classroom learning (Hafler, 2011).

How should professional *competency* be assessed during field education? In this survey of best practices across several professional disciplines, ten consistent themes emerge including (a) a professional orientation, (b) a needs-based justification, (c) an applied focus, (d) in-school assessment standards aligned with professional competence, (e) out-of-school program evaluation standards based on graduate success, (f) school-community relationships (g) curricula that satisfy federal standards, (h) responsiveness to changing demands in the profession, (i) logistics which support the education, and (j) an ongoing embedded curriculum improvement process. Involvement is also necessary from various stakeholders, including faculty, students, alumni, employers, professional associations, and others. The study also demonstrates that it is not sufficient to have a good instrument to assess professional competency. Field education must be properly designed in order to provide students opportunities to demonstrate professional competencies in actual work situations which are as complex and demanding as those found in professional practice.

Assessing the Teaching and Learning Utility of the iPad

Craig Leonard Brians, Parakh Hoon, Bruce Pencek, Jennifer Sparrow, & Logan Vidal
Political Science, Virginia Tech

In Fall 2011, students in several courses at Virginia Tech were issued iPad 2s by the administration. The purpose of this study is to assess student reading and learning using this 9.5 inch touch screen digital tablet. This paper reports the experiences of students in one such class: An International Studies senior seminar. In this class, the students receive all course information online, from the syllabus to the required readings. They participated in a blog and twitter feed. In addition to reporting student and instructor perceptions about this digital educational experience, we also empirically examined students' ability to perform typical higher education research tasks. Specifically, we measured participants' proficiency when performing scholarly research using digital tablets, as well as their relative ability to comprehend information whether presented on paper or on the screen. The results are discussed in light of other (very rare) research studies analyzing classroom use of iPads and Kindles.

Beyond the Books: Transforming Students Into Professionals

Sharon L. Gilbert, Katie Hilden, Boyoung Park, & Brenda-Jean Tyler
School of Teacher Education and Leadership, Radford University

Becoming a professional involves "integration of knowing, acting, and being" (Dall'Abla, 2009, p. 34) over time. To support the transition from student to professional, a group of faculty members in Radford University's School of Teacher Education and Leadership discussed four major areas which are commonly recognized across disciplines as integral parts of becoming a professional. These include identity and professional behaviors, professional habits, active participation in one's chosen profession, and ethics. Research supporting the importance of encouraging the development of students into professionals through intentional efforts has informed the work which will be shared during this session. With practical activities and examples, each of the areas will be discussed.

References
Dall'Alba, G. (2009). Learning professional ways of being: Ambiguities of becoming. *Educational Philosophy and Theory, 14*(1), 34-45.

Beyond Virtual Rats: Live Animals in the Undergraduate Classroom

Sharon A. Himmanen, *Department of Psychology*, *Cedar Crest College*

Although computer programs, such as *Sniffy the Virtual Rat Pro Version 2.0* (Alloway, Wilson, and Graham, 2005) are cost-effective alternatives, these programs do not provide the rich, hands-on experience found in studying behavior in living animals. Research has shown that live animals in the classroom foster a sense of empathy in students (Daly & Suggs, 2010), and substantially improves student learning of course concepts, motivation, and interest (Dohn, Madsen, & Hans, 2009). The purpose of this poster will be to discuss aspects of working with live animals in psychology and related disciplines, including a) activities and projects for students, b) making the best of

equipment on hand, c) practical issues involved in setting up and maintaining a live animal colony, and d) concerns and drawbacks to working with live animals.

References

Alloway, T., Wilson, G., & Graham, J. (2005). *Sniffy the Virtual Rat Pro Version 2.0*. Wadsworth: New York.

Daly, B., & Suggs, S. (2010). Teachers' experience with humane education and animals in the elementary classroom: Implications for empathy development. *Journal of Moral Education, 39(1),* 101-112.

Dohn, N.B., Madsen, P.T., & Hans, M. (2009). The situational interest in undergraduates in zoophysiology. *Advances in Physiology Education, 33(3)*, 196-201.

Building Community in a University Town: Motivational Factors for Shopping at a Local Farmers Market by Graduate Students

Maxwell Awando, Carmen Byker, Steven Golliher, Kati Span, Maria Stack, Chosang Tendhar, Penny Burge, & Heather Moorefield-Lang, *Virginia Tech*

Farmers markets represent a unique venue for analyzing the dynamic nature of communities. The purpose of this study was to describe the factors that motivate graduate students to patronize a local farmers market. Semi-structured interviews with six graduate students from a large, southern United Sates university were conducted. Interviews were analyzed using constant comparative methods. Eight themes emerged including (1) Location and Distance, (2) Seasonality, (3) Community, (4) Social Interactions, (5) Consumer and Producer/Vendor Connection, (6) Production Methods, (7) Environmental Concerns, and (8) Economic Reasons. The results have the potential to guide a marketing framework for farmers markets and strategies to appeal to the younger demographic consumers. Future research should focus on farmers market patronage by other populations.

Campus as Community: Going Local in Communication and Composition

Aryn Bartley, Brenta Blevins, & Michele Ren, *Department of English, Radford University*

In recent years, compositionists have asked students to engage in public writing, service-learning writing, ecocomposition and other place-based modes of writing, asserting that such practices can help students recognize the "location, geography, and spatial situatedness of textual production" (Dobrin and Weisser, 2001, p. 16); "address the topics that are important to community members" (Cushman, 2003, p. 822); and become "connected agent[s] in the world" (Mathieu, 2005, p. 14). This "community" that composition theorists discuss is quite often a non-university space where students engage in outreach or service-learning. While these practices are beneficial and important, in our courses, we take seriously Nedra Reynolds' assertion that "[a]long with sending students to communities that surround and support the university, we also need to encourage their understanding of the politics of space in the immediate university environment" (as cited in Mathieu, 2005, p. 15). Thus, we ask our first-year students to engage with the community they know the best and in which they have the greatest stake: the university.

In our first-year written and oral communication courses, we teach "local" texts and issues by designing assignments that ask students to write for the campus community. Students read examples from campus publications and write short essays that are suitable for a student-run newspaper or magazine of their choice.

The pedagogical benefits that we have noticed are that students see themselves as writers as they read other student texts and familiarize themselves with issues that impact the campus, students then situate themselves as members of a community, and they discover that their voices can help them shape that community.

In this poster session, we will share our assignments, sample student submissions, and student feedback about the assignments. We welcome discussion of the benefits, limitations, and potential iterations of such practices.

References

Cushman, E. (2003). The public intellectual, service learning, and activist research. In V. Villanueva (Ed.), *Cross-Talk in Comp Theory: A Reader* (pp. 819-828). Urbana: NCTE.

Dobrin, S., & Weisser, C. (2001). *Ecocomposition: theoretical and pedagogical approaches*. Albany: SUNY Press.

Mathieu, P. (2005). *Tactics of hope: the public turn in English composition.* Portsmouth: Boynton-Cook.

Reynolds, N. (2004). *Geographies of writing: inhabiting places and encountering difference*. Carbondale: Southern Illinois UP.

Career Perceptions of Undergraduate Students and Implications for Pedagogical Practice

Jessica Tussing & Thomas W. Broyles, *Agricultural and Extension Education, Virginia Tech*

Celeste Crisman, C. A. Shea Porr, & Rebecca K. Splan, *Animal and Poultry Sciences, Virginia Tech*

Over the past decade, higher education has been scrutinized, especially in the areas of cost and quality. In the recent literature, researchers and political officials are questioning the need for post secondary institutions above the associate's degree level. In the current economic times, many researchers are gathering data in an attempt to support the claim that students with a two year associates degree are able to earn equivalent salaries when compared to bachelors degree candidates, and can do so while incurring less debt. With the aforementioned concerns, the purpose of this research project was to determine career perceptions of undergraduate students enrolled in a introductory animal science course. A survey instrument was created and distributed to students with the intention of evaluating specific career goals in the equine industry. One hundred students responded to open ended questions regarding mobility potential, financial security, and personal satisfaction of specific career choices. Furthermore, students were asked to explain how their undergraduate programs would potentiate career success and why they chose their stated career aims. Student responses indicated that experiential learning was the most valuable to them, and a majority of the students indicated a preference for industry-based, hands-on careers. Based on the results of the research, many questions and recommendations were generated. These results suggest that further evaluation of experiential learning opportunities for undergraduate students is warranted, and could reveal a need for more specific industry-based instruction. Enhancing undergraduate coursework in this manner would increase the value of these programs, further justifying the incurred cost of this education. With a majority of students indicating a preference for more "hands-on" centered careers, more tailored instruction would likely prove useful to students entering the agricultural industry.

Cognitive Apprenticeship: Guiding Students in an Authentic Context

Julaine Fowler & Abbie Werner, *Learning Sciences and Technologies, Virginia Tech*

Cognitive apprenticeship involves situating learning in an authentic context, practicing some of the processes of traditional apprenticeship, and enabling learners to reach a point of independence through guidance. In traditional apprenticeship programs students learn from experts after being shown a new process or behavior. Students take on the role of observer, grasping the importance of events and processes only as they occur in specific contexts. The focus is on mastery of skills rather than transfer of knowledge. Cognitive apprenticeship, however, focuses on guiding the learner to develop the ability to generalize and appropriately apply knowledge. In cognitive apprenticeship learning is based on outcomes and real world application (Austin, 2009). Applying principles related to situated learning, Vygotsky's Zone of Proximal Development (ZPD), and traditional apprenticeship (Ghefaili, 2003), cognitive apprenticeship requires attention to four areas of the teaching and learning environment: content, methods, sequencing, and sociology (Driscoll, 2005). This process involves extensive planning and is dependent on the competence of the expert in methods such as scaffolding and coaching (Driscoll, 2005). Challenges to the implementation of cognitive apprenticeship include the changing role of the teacher to a facilitator and the expended period of student engagement. Technology may reduce these challenges by reducing strain on human resources and providing learners opportunity to explore at a slower rate, allowing for closer examination of concept and context details.

References

Austin, A. E. (2009). Cognitive apprenticeship theory and its implications for doctoral education: A case example from a doctoral program in higher and adult education. International Journal for Academic Development , 14 (3), 173--183.

Driscoll, M. P. (2005). Psychology of learning for instruction (3rd Edition ed.). New York: Allyn & Bacon.

Communication in Statistical Collaborations:
Teaching Students How to Be Effective Interdisciplinary Collaborators

Eric Vance, *Laboratory for Interdisciplinary Statistical Analysis (LISA), Statistics, Virginia Tech*

Many of today's scientific problems are extremely complex and require collaborative efforts between statisticians and researchers in science, social science, and the humanities. The large amounts of data produced in almost all areas of inquiry are leading to an increasing demand for statisticians who can communicate with non-statisticians while devising new methods to guide experimental design and data analysis (Lindsay, Kettenring, and Seigmund, 2004). Complicating efforts to solve interdisciplinary problems is that communication between statisticians and scientists is a serious problem (Kimball, 1957 and Hoadley and Kettenring, 1990). As our society becomes more dependent on data to make decisions, statisticians play ever more important roles in research. Industry, government, and academia increasingly demand that the statisticians they hire can effectively interact with non-statisticians and explain complex statistical analyses in understandable ways (Geller, 2011).

The Department of Statistics at Virginia Tech requires all of its undergraduate majors, M.S., and Ph.D. students to pass a course in statistical communication. This course is one step in the process of our students learning to become effective statistical collaborators. Good skills in communication will enable statisticians to apply their statistical training effectively to problems arising in other fields (Derr, 2000). In the course, "Communication in Statistical Collaborations," students develop the communication skills necessary to be effective interdisciplinary statistical collaborators. Students learn and practice skills in listening, asking good questions, managing an effective statistical collaboration meeting, giving effective feedback, assimilating peer feedback and self-reflection in their work, summarizing scholarly articles, and explaining and presenting statistical concepts to a non-statistical audience graphically, orally, and in writing. The course culminates in the write-up and presentation of a final project applying statistics to answer a real scientific problem. Pairs of statistics students collaborate with a non-statistician of their choosing on a research project they find interesting and present their results and experience to the class.

References

Derr, J. (2000). *Statistical Consulting: A Guide to Effective Communication, 1st Edition*, Pacific Grove, CA: Duxbury, Thomson Learning.

Geller, N. (2011). *Statistics: An All-encompassing Discipline*. Presidential Address at the Joint Statistical Meetings, August 2, 2011.

Hoadley, A. B., and Kettenring, J. R. (1990). Communications between statisticians and engineers/physical scientists. *Technometrics*, 32(3), 243-247.

Kimball, A. W. (1957). Errors of the third kind in statistical consulting. *Journal of the American Statistical Association*, Vol. 52, No. 278, 133-142.

Lindsay, B. G., Kettenring, J., & Seigmund, D. O. (2004). A report on the future of statistics. *Statistical Science*, 19(3), 387-407.

Comparison of Feedback Methods on Developmental and ESL Student Writing

Breana A. Bayraktar, *Educational Leadership and Policy Studies, George Mason University*

This poster will present a planned study of feedback methods for students taking developmental and English as a Second Language writing courses in a large community college setting. The presenter will propose a study comparing traditional (written) feedback on student papers to oral (recorded) feedback provided by the instructor, to oral and written feedback provided in a one-on-one peer tutoring session. Student writers will receive feedback on a series of essays through one of the proposed feedback methods. Data will include: the feedback provided (written and oral), interviews with student participants and instructor/peer tutor participants, and examples of student work. The poster will also propose an evaluation system for measuring change in student writing. Finally, the poster will also present the results of a pilot study, situate the planned study in the relevant literature, and discuss implications for teaching in higher education.

Context and Challenges of a Diverse Adult Student Body: Supporting Faculty

Neelam Aggarwal, *Teaching and Learning Centre, SIM University, Singapore*

Difference and diversity among student bodies in universities can translate into a more lively educational landscape. Such diversity also brings with it an intertwined set of challenges and opportunities for educators. This is particularly so if the learners are adults. SIM University (or UniSIM as it is widely known) is Singapore's only university focusing on the upgrading and learning needs of working professionals and adult learners. The student profile at UniSIM is different from that in the other universities at Singapore which cater primarily to school-leavers. The learners are adults, in-service and possessing heterogeneous prior knowledge, as contrasted with their counterparts in mainstream education. Visible differences such as those of age, language(s), cultural background, and prior qualifications among the 11,000 strong student body are less apparent, the invisible differences are greater. These include work experience, family responsibilities, time availability, learning abilities, different levels of preparation, level of mobility (actual and virtual), and attendance patterns. The fact that the instructors are also primarily part-timers adds to the challenge faced by the university to deliver effective teaching. This paper examines the strategies formulated by UniSIM to help their associate faculty develop skills to teach a diverse adult student population. One of the unique aspects of the UniSIM teaching and learning context is the emphasis placed on written feedback and comments. Individual strengths and weaknesses can be addressed through such teaching feedback. Thus a crucial function of the faculty support mechanisms is to help the associate faculty to provide quality learning by integrating appropriate and productive forms of communication with their students, including the provision of rich constructive feedback. This paper aims to explore how institutional faculty support mechanisms have been developed to create a rewarding teaching-learning context.

Copyright and the Classroom: What Teachers Should Know About Fair Use and the Law

Jerald H. Walz, *Educational Leadership & Policy Studies, Virginia Tech*

In today's highly technological environment, classroom teachers need to be aware of the opportunities and challenges of using copyrighted material under the legal doctrine of Fair Use. Authors or owners of original works possess certain legal rights concerning the use of their material (U.S. Copyright Office, 2009). For an author who creates an original work, copyright provides protection against illegal infringement and is established by the U.S. Constitution and federal law (Lyons, 2010). The Fair Use doctrine grants an exception to copyright and allows "a reasonable and limited use of a copyrighted work without the author's permission" (Garner & Black, 2009, p. 676). However, changes in technology prompted Congress to update the Copyright Act (Latourette, 2006; Nelson, 2009). The Technology, Education, and Copyright Harmonization Act (TEACH) of 2002 addressed "concerns brought about by the increasing popularity of online or distance education" (Nelson, 2009, p. 85). The updated law attempted to maintain a balance between copyright holders' desire to protect their rights and educational institutions' desire to incorporate protected works into their electronic courses (Latourette, 2006). This paper reviews the current literature to provide an understanding of copyright law and the provisions for the fair use of copyrighted material in an educational setting. The paper examines key court cases that have clarified fair use issues and offers recommendations for practice.

References

Garner, B. A., & Black, H. C. (2009). *Black's law dictionary*. St. Paul, MN: West.

Latourette, A. W. (2006). Copyright implications for online distance education. *Journal of College and University Law, 32*(3), 613-654.

Lyons, M. G. (2010). Open access is almost here: Navigating through copyright, fair use, and the TEACH Act. *The Journal of Continuing Education in Nursing, 41*, 57-64. doi:10.3928/00220124-20100126-03

Nelson, E. (2009). Copyright and Distance Education: The Impact of the Technology, Education, and Copyright Harmonization Act. *AACE Journal, 17*(2), 83-101.

U. S. Copyright Office. (2009). *Reproduction of copyrighted works by educators and librarians*. (Circular 21). Retrieved from http://www.copyright.gov

Crayons and College Students: Instructional Strategies That Work in All Educational Settings

Jessica R. Chittum, *Center for Instructional Development and Educational Research, Virginia Tech*

Elementary education programs primarily focus on *how* to teach, rather than *what* to teach, as elementary teachers are expected to already know, or learn very quickly, the curriculum. Thus, much of an elementary teacher's education is spent learning pedagogical strategies. Higher education instructors are experts in a specific field of study, although not always in instructional strategies. This session is intended to demonstrate how to use these strategies easily in multidisciplinary higher educational settings, specifically strategies typically associated with elementary education. The focus is on peer interactions facilitated by the instructor. Research suggests that when learners are engaged and constructing knowledge, they are more apt to remember and comprehend the material. Accordingly, this session will elaborate on the following steps for approaching a topic of study: 1) peer discussion, 2) cooperative learning activities, and 3) independent assignments structured to induce critical thinking and risk-taking. Peer discussion involves assigning partnerships through which students converse regarding specific teacher-chosen topics, mid-lecture. In particular, these partnerings enable each student to draw on background knowledge while critically analyzing particularly difficult or new concepts presented in class. Cooperative learning groups will, through a range of motivating and collaborative strategies, allow students to practice or clarify concepts learned in class and/or through assigned readings. Finally, the independent assignments are presented by offering students options that motivate multiple types of learners. In addition, they are specifically designed to foster critical thinking skills and risk-taking as they include choices that vary from the typical method of assigning research papers. The MUSIC model of motivation is discussed as a means of designing activities and assignment choices. As a result, these so called "elementary" strategies can strengthen higher education student learning, much as they do for younger learners.

Creating and Evaluating Significant Learning Experiences in an Experientially Based Stress-Management Course

Sandra Gramling, Benjamin Lord, Elizabeth Collison, & Leia Harper
Psychology, Virginia Commonwealth University

The importance of taking a scholarly, evidence-based approach to the use of experiential exercises when teaching Stress Management has been a key concept since the inception of our course (Gramling, Auerbach, & Farrel, 1990). However, there has been relatively little attention paid to assessing the extent to which these evidence-based exercises, in fact, contribute to "Significant Learning Experiences" as described by Fink (2003). The current course offering seeks to implement an inductive approach in linking practice (experiential exercises such as progressive muscle relaxation) with applicable learning theory (e.g., classical conditioning), and outcome research (evidence that the practices are effective) to promote deeper learning. Undergraduate students (N=200) enrolled in a Stress Management course participate in 12 modules conceptually linked into 4 units. Each module begins with the practice of a specific experiential exercise followed by peer and class discussion aimed at tying the exercise to specific learning and/or coping theory and outcome literature. Out-of-class assignments expand on the in-class practice by including further application of the exercise along with written responses to integrative questions linking the exercise to key course concepts. Currently, data are being collected to assess the effectiveness of this inductive approach. Moreover, the present proposal further expands on these efforts by developing course-specific learning goals consistent with Fink's (2003) Taxonomy of Significant Learning Experiences. An integrated course design has been developed whereby the Learning Goals, Teaching and Learning Activities, and Feedback and Assessment procedures described by Fink (2003) are interconnected and support each other. We believe that a description of these efforts and outcomes will be of interest to educators across disciplines

References

Fink, L. (2003). Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses. John Wiley and Sons : San Francisco, CA

Gramling, S., Auerbach, S., and Farrell, A. (1990). More than a mantra: Stress and its management (PSY 308). VCU Teaching, 3(1), 12-14.

Creating Opportunities for Experiential Learning, Community Service, and Sustainable Agriculture

Joseph W. Guthrie, Pavli Mykerezi, Samuel Doak, Thomas Martin, & Rachel Kohl,
Agricultural Technology Program, Virginia Tech
Kim Thurlow & Christy Gabbard, *Catawba Sustainability Center, Virginia Tech*

This poster presents a case study of two Virginia Tech departments – Agricultural Technology (AT) and the Catawba Sustainability Center (CSC) - working together to enhance the missions of both while providing experiential learning, increasing the university's service to the community, and enhancing sustainability of agricultural production systems. AT is Virginia Tech's only 2-year associate's degree granting program. A strong emphasis is placed on highly applied and hands-on instruction, so faculty constantly seek new experiential learning opportunities for students while integrating learning between multiple courses and incorporating service-learning into instruction whenever possible. The CSC's 377 acres, formerly a farm for a hospital about 20 miles from the Virginia Tech campus, is virtually unused due to lack of funding, infrastructure, and labor. The CSC's leadership team has a master plan for it as a home to start-up agricultural related businesses, a site for extension programming and demonstrations, a place for research in sustainable agricultural production, and a gathering place for the Catawba community. AT faculty and CSC staff have devised and are implementing the first stages of a long range plan that includes students creating, designing, and implementing certain improvements to the CSC, which will allow it to provide services to the university and community. Three projects are ongoing and have already provided experiential learning for students in both years and both options in AT. The projects include soil sampling and analysis, design and construction of a sustainable and esthetically pleasing landscaped entrance to the property, and a rotational grazing system for cattle. Once fencing for the cattle are in place, students can gain further hands-on experience assisting a local farmer with raising them. Further experiential learning opportunities are currently being explored with faculty from other colleges who are utilizing the CSC for their research and teaching.

Cross-Disciplinary Collaboration: Sharing Course Activities With the College Community

Julia Grace Jester, *Psychology, Harrisburg Area Community College*
Judith Rosenstein, *Sociology, United States Military Academy*

This poster discusses the benefits and problems in creating cross-disciplinary events that encompass both course assignments and activities for the campus as a whole. These observations are based upon the experiences of a psychology professor and a sociology professor who, while teaching a "stigmatization and stereotyping" class and a "hate crimes" class respectively, decided to do joint activities that were open to the college. The point was to open up our in-class discussions on these topics to the college community at large, with the intent being to build towards a proactive event about encouraging positive change. The goals of this poster are to present proactive suggestions for creating cross-disciplinary projects and events that improve student involvement and satisfaction and add to the college community in the process. Suggested examples for cross-disciplinary connections are included to demonstrate the broad application of this connected-course construction. The joint work completed in this instance were two movie events with guided discussions and a final project presentation for both classes aimed at raising awareness of issues surrounding stereotyping, diversity, sexism, and racism. Suggestion for engaging in this type of work involve early planning to structure the multiple timelines, creating a joint vocabulary for ideas and disciplines, engaging students as collaborators in the course design, and connecting to campus groups that would benefit from involvement in course-related events. A description of the completed project will be used as a baseline for making suggestions that could bridge a variety of disciplines. We are presenting this as an example of how collaboration across disciplines can lead to inspired proactive students, and the expansion of class goals to application and community interaction. The combination of the courses was a great success, leading to student learning and positive feedback from students, faculty, and other guests at the events.

Culture Architectonics at the University: Student Learning

Tetyana Melnychuk & Nina Tverezovska,
Pedagogical Sciences, National University of Life and Environmental Sciences
Nataliya Ridei, *Agricultural Sciences, National University of Life and Environmental Sciences*
Svitlana Amelina, *Pedagogical Sciences, Dnipropetrowsk State Agrarian University*

The study was conducted among university students in order to determine student understanding of the phenomenon "culture" and its aspects. Students were offered a choice between different approaches to the definition of culture: genetic, axiological, humanistic, normative and sociological. The largest number of respondents – 38% - said normative culture phenomenon that governs behavior in society. In addition, students studied notion of culture architectonics. Students said that separation of the two forms of culture – material and spiritual – should be considered. It was selected following aspects: mankind's, mass, personal, moral, industrial, professional, agricultural, information, educational, scientific, environmental.

Designing an Educational Development Roadmap for a Distance Online University

Corinne Bossé & Cindy Ives, *Centre for Learning Design and Development, Athabasca University, Canada*
Derek Briton, *Office of the Vice President Academic, Athabasca University, Canada*

Using Educational Development as a practice based on theoretical and experiential understanding of teaching and learning is our method of choice for effecting and affecting the management of change in a distance online university that is reconfiguring its systems, policies, and governance with the emerging technologies. This institutional change entails moving beyond established practices by rearticulating the role of pedagogy in a digital age and adopting learning design approaches (Beetham & Sharpe, 2007). The proposed poster session will discuss how an embryonic educational development initiative that places learning at the centre of all institutional activities can serve to inspire faculty to embrace new methods for facilitating teaching and learning. From our needs assessment conducted in 2010, we determined that faculty wanted to know more about: course design for online learning, using interactive online learning activities, creating simple and effective content for audio and video, integrating online resources, using social media in courses, designing assignments and strategies to avoid plagiarism. We designed activities ranging from show and tell presentations to customized workshops to address these priorities. Mapping out educational development plans also corresponds to an alignment process with the broader goals of community building in the distributed higher education environment. An effective strategy focused on using workshops as reflective spaces to support faculty development in their course design (Saroyan & Amundsen, 2004). Educational development can thus be leveraged to foster a scholarship of teaching and learning (Boyer, 1990; McKinney, 2007). We envision integrating design-based research methodologies for further pedagogical explorations that will legitimize investment in learning and teaching as well as impact levels of expected outcomes for students, faculty, programs, departments and the institution. The poster is a representation of our journey to date. It is also a means to reaching out to colleagues for ideas, suggestions and criticism as part of our ongoing consultative process.

References

Boyer, E. (1990). *Scholarship reconsidered: Priorities of the professoriate.* New York: The Carnegie Foundation for the Advancement of Teaching.
Beetham, H. & Sharpe, R. (Eds.). (2007). *Rethinking Pedagogy for a Digital Age.* N.Y.: Routledge.
McKinney, K. (2007). *Enhancing learning through the scholarship of teaching and learning: The challenges and joys of juggling.* Bolton, MA: Anker.
Saroyan, A. & Amundsen, C. (Eds.). (2004). *Rethinking teaching in higher education: From a course design workshop to a faculty development framework.* Sterling VA: Stylus Publishing.

Designing and Planning DE Courses

Valerie Shapko, *Instructional Specialist, Texas Woman's University*

In recent years, instructors often have to take their face to face class and transfer it to online class. Distance education (or online) courses require that a face-to-face class be completely redesigned. When thinking about moving portions of a course online, it is important to have some pedagogical reason for doing so. Adopting technology for technology's sake leads to disconnectedness between the online and the face-to-face components of the course. This presentation examines why we need to think differently when creating an online course. Participants will engage in guided discussion assessing best practices and steps how to plan and transfer face to face to an online course. I will demonstrate how it is practiced at TWU.

Developing Cross-Cultural Competencies Through Interdisciplinary Collaboration

Heljä Antola Crowe, *Teaching and Learning*, Kendra Brandes, *Family and Consumer Sciences*,
Robert Davison Aviles, *Leadership in Education, Human Services, and Counseling*,
Deborah Erickson, *Nursing*, & Dawn Hall, *Physical Therapy, Bradley University*

Lindsey et al. (2003) outline levels of cultural proficiency from cultural precompetence through cultural competence to cultural proficiency. Precompetence level individuals respond inadequately with limitations in awareness when interacting with other cultural groups. Competency shows individuals' understanding regarding what kind of difference, difference makes. Culturally proficient individuals hold esteem for culture; knowing how to learn about individual and organizational culture and interacting effectively in a variety of cultural environments.

Through an interdisciplinary team teaching approach between counseling, family and consumer sciences, nursing, physical therapy and teacher education, Global Scholars from these disciplines commit to taking a series of courses, participating in on-campus activities and in a synthesizing Professionalism Across Cultures Course, typically after their Study Abroad experience. The course includes a variety of intercultural interactions, purposive perspective-taking activities, presentations and classroom engagement within an interdisciplinary environment, an approach new to the college.

This study scrutinizes the development of Global Scholars on Lindsey, Nuri Robins & Terrell's (2003) cultural competency continuum from their initial application essay into the program through their cultural reflections in their Professionalism Across Cultures course. These were used as measures in the study.

Using a comprehensive process analysis, Consensual Qualitative Research (CQR) (Knox et al. (1997, Hill et al. 2005), the cultural reflection documents were examined for consensus, determination of domains (such as propelling life events, anticipation of cultural entry, parallel realities, external vs. internal growth), assignment of domains, and core ideas. Preliminary analyses show that students in the experience do move toward Cultural proficiency within the continuum. The pilot phase will be continued by auditing the consensus analysis and cross analysis of core ideas across domains.

Discussion affirms an intriguing parallel process of interdisciplinary discovery between the professors from the various disciplines teaching together with the Global Scholars' processes who venture into cultures unknown to them.

References
Hill, C.E., Thompson, B. J., Hess, S. A., Knox, S., Williams, E. N., & Ladany, N. (2005). Consensual qualitative research: An update. *Journal of Counseling Psychology 52(2), 196-205.*
Knox, S., Hess, S. A., Petersen, D. A. & Hill, C. (1997). A qualitative analysis of client perceptions of the effects of helpful therapist self-disclosure in long-term therapy. *Journal of Counseling Psychology, 44(3), 274-283*
Lindsey, R. B., Nuri Robins, K. Terrell R. D. (2003). *Culturally Proficient Instruction*. Thousand Oaks, CA: Corwin Press.

Development of In-Major Courses to Scaffold Technology Skills for Industry Readiness

Doris Kincade, Peggy Quesenberry, & Jihyun Kim, *AHRM, Virginia Tech*

When they graduate, Apparel Product Development and Merchandising (ADPM) students' literacy in industry computer-aided design technology (e.g., Adobe Photoshop® and Illustrator®) must be well honed. Employers do not have resources to train new employees; they expect them to "hit the ground running" with advanced skills (La Petite, 2011). Students need to learn the foundations, practice their new techniques, and build advanced skill. This scaffolding or moving students from a beginning level to an advanced level has been used extensively in teaching computer science (Linder, Abbott, & Fromberger, 2006; Thomas, Ratcliffe, Woodbury, & Jarman, 2002). To deliver this type of education, the ADPM Option launched in 2008 a new 5-course package. The five course sequence is taught by three instructors. This project presented many of the same challenges as team teaching a course but multiplied over five courses. We wanted projects in each course to build on skills learned in the previous courses. Initially, the sequencing was developed based on interviews with alumni in the industry. Through weekly meetings, a list of objectives was made and apportioned to each course. Next, activities were described for each course and sample projects visualized. As an aid to ensuring the incremental build of courses we had "what do they need" meetings. Weekly meetings continued into monthly meeting to ensure that the students are not just introduced to software but that they experience the process, continue to advance their CAD literacy and can present these skills in an industry-ready package. Recent discussions with alumni and a review of U.S. apparel programs indicate that this technology-rich and process-integrated series is best to prepare our students to the expectations of employers. We meet regularly to fine tune courses and assess outcomes. The first graduating class from this new curriculum report that they are job-ready.

References
La Petite Fashionista. (2011, January 8). *So you want to work in fashion*. Blog posted on
        http://lapetitefashionista.blogspot.com/2011/01/so-you-want-to-work-in-fashion.html
Linder, S. P., Abbot, D., & Fromberger, M. J. (2006). An instructional scaffolding approach to teaching software
        design. *Journal of Computing Sciences in Colleges, 21*(6), 238y-250.
Thomas, L., Ratcliffe, M. Woodbury, J., & Jarman, E. (2002). Learning styles and performance in introductory
        programming sequence. *SIGCSE '02 Proceedings of the 33rd SIGCSE Technical Symposium on Computer
        Science Education*. New York, New York: ACM Press.

Development, Implementation, and Assessment of a Distance-Based Interprofessional Education Class for Health Science Students

Stuart Tousman, Danielle Lusk, Robert Reese, Gelene Thompson, Linda Cochran,
Lisa Allison-Jones, Glen Mayhew, & David Halpin, *Jefferson College of Health Sciences*

For re-accreditation, Jefferson College of Health Sciences developed a three-course Interprofessional Education (IPE) program for undergraduate students. The first one-credit distance-based course, IPE 200 Fundamentals of Teamwork, was offered in Fall 2011 for 159 students in seven sections. The objectives for the course included: (1) Describe the structure and function of teams; (2) Develop skills to ensure effective communication; and (3) Demonstrate attitudes and behaviors that support effective teamwork and collaboration. To assess if these learning outcomes have been achieved online surveys will be given at the end of the class. We predict that students will demonstrate competence for the three objectives.

Dial D for Distraction: The Making and Breaking of Cell Phone Policies in the College Classroom

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Cell phones are the veins in a circulatory system for social life-blood. On top of providing a link to social contact, phones now access email and the Internet, take pictures, record voices, and come with a bevy of applications. As a consequence, phones are ubiquitous, and asking students to refrain from using their cell phones in class is a constant and uphill battle. The ongoing debate over controlling cell phone use in the classroom offers no clear policy solutions for professors. This project asks two questions: How/why are students using cell phones in the classroom and how do faculty members control cell phones in the classroom? The study analyzes survey data from university/college students to help professors better understand the student's impulse to use cell phones in the classroom. Additionally, survey data from university/college professors is used to evaluate a range of policy options for dealing with cell phones in the classroom.

Do You Get What You Pay For? The Availability, Use, and Development of Open-Access Textbooks for College Classes

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Open textbooks are texts that are available free of charge, and most frequently online, to faculty and students (Baker, Thierstein, Fletcher, Kaur, & Emmons, 2009). The significant financial savings afforded by open texts has increased their popularity among faculty and students. For instance, the *Student Public Interest Research Groups* (http://www.studentpirgs.org), an organization of student groups that address public-interest issues, has asked college faculty to sign a pledge to consider open textbooks when they select texts for their courses. Additionally, Harley, Lawrence, Acord, and Dixson (2010) found that 95% of faculty surveyed at one university reported being willing to using open textbooks as long as the quality of the text was the same as a traditional textbook. As seen in Harley et al.'s results, faculty support is often qualified. Concerns that have been raised in the adoption of open textbooks include ensuring the quality of the text, the availability of ancillary materials, and controlling and documenting changes made within the text (Baker et al., 2009). This poster will present a discussion concerning the use of open textbooks in college classes based on a review of the literature and the presenters' experiences developing and using open-access text materials. It will address the availability of open textbooks for college classes, the advantages and limitations of using open textbooks, and a case study of the ongoing development of an open textbook. Additionally, practical suggestions for selecting and integrating open texts into college courses will be provided.

References
Baker, J., Thierstein, J., Fletcher, K., Kaur, M., & Emmons, J. (2009). Open textbook proof-of-concept via Connexions. *International Review of Research in Open and Distance Learning, 10*(5), 1-13.
Harley, D., Lawrence, S., Acord, S. K., & Dixson, J. (2010). *Affordable and open textbooks: An exploratory study of faculty attitudes* (Report CSHE.1.10). Retrieved from University of California, Berkeley, Center for Studies in Higher Education.

Do You See What I See? Faculty and Student Perceptions of the Classroom

Kerrie Q. Baker, *Psychology Department, Cedar Crest College*

Students of all ages are going to college. One must wonder how a varied make-up of the classroom affects the learning experience. Bishop-Clark and Lynch (1995) and Darkenwald and Novak (1997) found that mixed-age classrooms create richer learning environments. Yet, Koeppen and Griffith (2003) reported student diversity

negatively affected classroom instruction. More recently, Gregoryk & Eighmy (2009) found that generational groups of students have differing preferences for educational activities and the classroom. To further explore this issue, 45 faculty members and 456 students at a small college responded to a 6-page survey. Descriptive statistics and independent t-tests compared responses, resulting in many significant differences. For example, 57% of faculty and 42% of students thought that instructors interact with younger students differently. About 25% of instructors like teaching more in a mixed-age classroom, and 82% percent of faculty and 75% of students thought that diversity helps students see different perspectives. Over 70% of faculty, but only 27% of students, thought that learning in a mixed-age classroom is more challenging. Almost 80% of the faculty, but only 42% of the students, said the age of their classmates affects the dynamics of the classroom environment, and interestingly, 18% of the faculty and 25% of the students, said the age of their classmates affects the pace at which the course is taught. Overall, faculty and students do have different beliefs, which will in turn affect how they behave and react in the classroom. Students perceive instructors interacting differently with older versus younger students. Consequently, a mix of students in a classroom does matter; that is, people notice their classmates and transfer societal perceptions of age to the educational setting. The more we know about the interactions between different-aged students and their instructors, the more easily instructors can facilitate effective learning for each generation.

References

Bishop-Clark, C., & Lynch, J. (1995). Faculty attitudes toward the mixed-age college classroom. *Educational Gerontology*, *21*(8), 749-761.

Darkenwald, G., & Novak, R. (1997). Classroom age composition and academic achievement in college. *Adult Education Quarterly*, *47*(2), 108-117.

Gregoryk, K., & Eighmy, M. (2009). Interaction among undergraduate students: Does age matter? *College Student Journal*, *43* (4, PtA), 1125-1136.

Koeppen, K., & Griffith, J. (January, 2003). *Nontraditional students and their influence on teacher education*. Paper presented at the Annual Meeting of the American Association of Colleges for Teacher Education, New Orleans, LA.

Does Poor Performance in Introductory Courses Limit Success in Future Courses?

Isis K. Mullarky, Mike McGilliard, & Benjamin A. Corl. *Dairy Science, Virginia Tech*

Research by Dr. Freeman Hrabowski has indicated that success in early course work predicts success in higher-level classes for minority students. Many students struggle with the transition from high school to college and fail to master material in introductory courses. Insuring that students achieve long term academic excellence is paramount to the faculty in the Department of Dairy Science. To determine if poor performance in lower-level courses precludes success in upper-level courses, we analyzed success rates of 183 students from 1988 through 2009 in upper-level courses based on grades obtained in lower-level courses (3,568 grades) that were primarily prerequisites. Various regression analyses, correlations, and contingency tables yielded only partial success due to scarcity of particular course combinations and ambiguity of interpretation. More clarity was obtained by defining success in a course as a grade score of at least 3.0 (3.3 for in-major courses), and predicting success in each upper-level course from two to four prerequisite lower-level courses. Success was coded as 1, otherwise 0. Prerequisite courses were aggregated for each student and upper-level course by summing the student's coded scores (4 = success in four prerequisite courses; 0 = no success in any). Statistical analysis of each outcome course from the aggregate score of prerequisites was modeled with a binary distribution using Proc Glimmix in SAS, producing the probability of future success for each aggregate score. Six of the seven outcome courses had significant differences in aggregate scores, as typically indicated by 80% success for students who succeeded in all prerequisite courses contrasted with 10% success following no success in their prerequisite courses. Our findings quantify the later success of Dairy Science students who mastered materials in early prerequisite courses, and provide impetus to intervene early with less successful students.

Does Time Matter for a Faculty Workshop? Development of a 6-Hour Digital Storytelling Work Session

Juhong "Christie" Liu & R. Nicole Wilson, *Center for Instructional Technology, James Madison University*

This presentation will demonstrate the design and structure of a 6-hour digital storytelling work session. Digital storytelling has been used to teach many subject areas in higher education. Recently, pedagogical needs of nurturing active learning and easy access to technologies enabled digital storytelling as assignments created by students. Faculty members who want to incorporate digital storytelling assignments into their courses need training on course design, technology competencies of creating multimedia content and knowledge on selecting available resources. To meet these needs, a 6-hour work session was developed based on the Gerland and Ely Model (1980), with the focus on allocation of time in designing the flow and activities. The audience at this presentation will engage in a discussion about different aspects of this unique type of faculty development event, including design with timing considerations, determination of resources, content coverage, and possible approaches of evaluation.

References

Gerlach, V.S. & Ely, D.P. (1980). *Teaching and Media: A Systematic Approach* (2nd Ed.). Boston, MA: Allyn and Bacon.

Engage!: Improving Teaching and Learning by Involving Faculty in Their Own Professional Development

Stephen G. McLeod, *Department of English and Modern Foreign Languages, Jackson State University*

A frequent approach to faculty professional development is to bring in "an expert" (i.e., someone from out of town who charges a hefty fee). This session will illustrate an alternative approach to faculty development: a low-cost, high-impact training conference that relies primarily on local resources and involves faculty in their own professional development. In May, 2011, this was precisely the approach used to train the multidisciplinary faculty in the Jackson State University Activity 7 Project, a Title III project that uses an active learning model to enhance instruction and improve student learning outcomes in the core curriculum. In keeping with the purpose of the project, the conference agenda involved (a) stimulating faculty creativity through an arts integration workshop, (b) connecting the faculty to the key personnel and services of the Office of Student Life, and (c) involving faculty in developing and demonstrating active-learning lesson plans to their colleagues. The arts integration workshop invited faculty to see the universe and (wonder of wonders!) the curriculum itself as "a unity full of significance" (Einstein, quoted in New York Times). Connecting faculty to the Office of Student Life prepared them to assist in meeting student needs by referring students to appropriate services and activities. This component of the training was grounded in the work of Tinto (2006-2007) and others (e.g., Janes, 1997; Mundy & Eyler, 2002; Richmond, 1986), whose research indicates a positive correlation between involvement in student life activities and student persistence. The lesson demonstrations enabled faculty members to practice the active learning that they teach and to enter the new semester fully equipped with a repertoire of ready-to-implement lesson plans.

References

New York Times. (1955, April 19). *Albert Einstein Dies in Sleep at 76; World Mourns Loss of Great Scientist*. Obituary. Retrieved from www.nytimes.com/learning/general/onthisday/bday/0314.html

Janes, S. (1997). Experiences of African-American baccalaureate nursing students examined through the lenses of Tinto's Student Retention Theory and Astin's Student Involvement Theory. ASHE Annual Meeting Paper. ERIC ED415817.

Mundy, M. & Eyler, J. (2002). Service-learning and retention: Promising possibilities, potential partnerships. ERIC. ED482320.

Richmond, J. (1986). The importance of student involvement: A dialogue with Alexander Astin. *Journal of Counseling & Development*, 65(2), 92-95.

Tinto, V. (2006-2007). Research and practice of student retention: What next? *Journal of College Student Retention: Research, Theory & Practice*, 8(1), 1-19.

Enhancing Learning with Technology: The Effectiveness of Using Skype for Guest Lectures

Marc Thomas, *Alliance for Social, Political, Ethical and Cultural Thought (ASPECT), Virginia Tech*

A guest lecturer with expertise on the Rastafari religion had to be identified and one was eventually located in Jamaica. The distance was eliminated by using a cost effective and convenient technological tool: Skype. Skype is software that allows one to make video calls over the internet. The value however goes beyond cost, as the creative use of technology carries positive pedagogical outcomes. The research sought to identify the extent to which this method broadened student exposure to different perspectives and stimulated interest in the topic. The descriptive quantitative research method employed, guided the creation of a questionnaire that was then completed by the twenty five students who attended the lecture. The results matched the objectives of active and collaborative learning and hence support further use of the method. The findings are as follows: 1) 100% of the respondents indicated that this method was superior to the traditional route in broadening their exposure to different perspectives. 2) 72% agreed that this method stimulated their interest in the subject matter. 3) All but two respondents indicated that the method was not a distraction from the lesson. 4) 52% believed that the method contributed to them understanding the topic. 5) There was ambivalence in the group as to whether intimacy was lost by using this method. 36% remained neutral, while 36% considered the method superior and 28% inferior to the usual face-to-face lecture format. The findings contribute to our understanding of the outcomes that can be expected, when Skype is used to bring scholars into the classroom from 'virtually' anywhere in the world.

Equine Pictures: Demonstrating College Students' Abilities to Learn Visually

Brittany Shank, *Mechanical Engineering and Equine Production, Virginia Tech*
Samantha Blevins, *Instructional Design and Technology, Virginia Tech*

Using pictures to help students learn are more effective in helping them to retain the information than simple descriptions. We took a beginning equitation class of eight students and divided them into two different sections. The first section was given written descriptions containing all identifying marks for a group of fifteen horses. The second section of students was given images of the same group of horses containing a side profile overlaid with a picture of their face and name. The two groups were sent out to the various fields to locate the horses and their times as well as if they were correct were both recorded. It was found that the group given the images of the horses had a higher percentage of correct horses as well quicker retrieval times. This demonstrates that using photographic media is effective in helping students to learn and retain information.

Evaluating Learning in Introductory Online and Traditional Lecture Courses

Jennifer L. Sliko, *Department of Geosciences, Virginia Tech*

Online courses afford students the flexibility of taking a course without temporal or geographic constraints, a flexibility that is desirable for both busy and non-traditional students trying to fulfill degree requirements. Additionally, online courses allow instructors to utilize a variety of technological tools not available in a traditional lecture format to deliver learning material through new and innovative techniques. These courses encourage students to use a variety of digital media and prepare them for communicating with colleagues in a global community. Unlike traditional lecture courses, online courses require students to be active learners through varied methods of course delivery. Capitalizing on the unique environment of an online course, students in an introductory geology course are encouraged to complete a variety of quantitative activities using real data sets and finding additional information beyond that which is provided by the textbook. Additionally, students work on several group projects throughout the semester to foster a sense of community in addition to improving their asynchronous online communication skills. However, despite these advantages, a common concern regarding online courses is that the students in an online course do not learn as much as students in a traditional lecture course. Pre-course and post-course assessments are used to examine if students in an online introductory geology course learn the same basic geologic concepts as students in a traditional lecture-style course. Over 4 semesters, the assessment scores generated from 1000 students in 9 traditional lecture courses and 300 students in 4 online courses are compared. Results of statistical analyses

show that students learn the same basic geologic concepts in both online and traditional lecture classes. These results suggest that online introductory courses that include active learning materials are a viable substitution for traditional lecture introductory courses.

Evaluating Students Experiences in a Youth Outreach Program

Jennifer Helms, Havva Savran Al-Haik, Michelle Greaud, & Thomas Broyles
Agricultural and Extension Education, Virginia Tech

Observing the quantity of youth programs in the United States, program quality and accountability has become essential. The Governor's School for Agriculture 2011 Questionnaire/Final Survey was developed to evaluate students experience throughout the program. This survey was used to assess the programs logistics, dining and residence, curriculum, group projects, school logistics and affiliates, seminars, activities, and other suggestions from students. Additional data collected through multiple choice or short answer questions aim to discover student's interest in agriculture and science, college plans, and career plans. Demographic information was collected from participating students along with a history of Agriculture Education and 4-H youth involvement. The methodology included the administration of a paper instrument to all 100 students two days prior to the end of the event. The responses were then recorded in a database. Using quantitative methods, likert scale survey results were analyzed for correlation of student overall satisfaction with youth agriculture program involvement, demographic area, gender, parent's educational level, and major. Findings on the difference between overall satisfaction with academic versus non-academic activities resulted in non-academic activities scoring higher by participants. When analyzing overall satisfaction of participants the results showed a rating of very good. We specifically address how student involvement in a youth agriculture program, demographic area, gender, parent's educational level, and major influence views on experience during the Virginia Tech Governor's School for Agriculture 2011 Program?

Experiential Learning in the Hospitality Industry: Is There a Best Practice?

Tammie J. Kaufman, *Foodservice and Lodging Management, University of Central Florida*

Most hospitality programs have experiential learning requirements. There have been no studies that focus on the competencies gained and the skill sets that have been acquired from these experiences in relationship to the type of internship program that is offered by the college. For instance, some colleges require only one internship and others require students to take certain classes before their internship. The purpose of this research is to determine if there is a best practice when it comes to experiential learning in a hospitality program. The data to be presented will be the beginning of three parts of this research. The entire study will include personal interviews with human resource representatives that have employed interns to find out skill sets that are required to be successful. The second part is collecting information regarding hospitality experiential programs. To answer the following questions: how long are the internships and are there required classes to take before the internships? The third part will be a survey given to students at the selected schools based on the skill sets needed for success and their perceived competency. The data analysis will focus on any patterns between competency and internship as well as classroom experience. The findings will determine if there is a best practice based on the internship model used by a program. The results that will be shared at this conference will include the data acquired from human resource representatives based on skill sets necessary for success.

Exploration of Methodologies in Clinical Teaching and the Supervisory Process

Lauren Smith & Kenneth Cox, *Communication Sciences and Disorders, Radford University*

Clinical teaching and supervision are considered complex and subtle forms of teaching that serve to enhance the student's level of knowledge, link classroom experience to clinical practice, and facilitate growth in the areas of self-esteem, self-actualization, and professionalism. Several models of learner behaviors (Dreyfus & Dreyfus, 1986; Hersey & Blanchard, 1983) and supervision approaches (Hersey & Blanchard, 1983) relevant to graduate student practicum have been identified to aid clinical educators in developing and implementing individualized supervisory

approaches. The American Speech-Language-Hearing Association (ASHA) requires that graduate students in speech-language pathology (SLP) acquire knowledge and skills (KASA) in the area of hearing related disorders. The Department of Communication Sciences and Disorders (COSD) at Radford University (RU) provide those students with an opportunity to gain those mandatory KASA skills through a clinical rotation in the audiology clinic at RU. The primary goals in the RU audiology clinic are to create growth in two key areas: self-esteem/confidence and self-actualization; concepts undergirded in Maslow's Hierarchy of Needs (Maslow, 1954). However, this unique clinical opportunity presents several potential challenges at both the graduate student and the clinical educator levels. The purpose of this report is to describe the supervisory approaches used by faculty supervising SLP graduate students in the audiology clinic, describe the links between models of student learning behaviors and supervisory approaches, examine student attributes and faculty characteristics that contribute to a successful supervision and learning experience, and discuss the successes and failures of actual implementation of various supervisory approaches.

Exploratory Research into the Alpaca Fiber Textile and Apparel Industry

LuAnn Gaskill, *Apparel, Housing & Resource Management, Virginia Tech*

The apparel program area at Virginia Tech was contacted by the Virginia Alpaca Owners and Breeders Association in hopes of establishing a working relationship between the area alpaca industry and academics in the textile and apparel program. This project took place to learn more about the challenges and opportunities pertinent to the industry, and to offer students valuable learning opportunities and access to national design competitions for students in the apparel program area interested in working with alpaca related fiber products. Methodology included a review of available literature and information, on-site experiential learning opportunities, and knowledge gathering methods such an informal discussions with employees, owners and managers, trade association members, alpaca fiber spinners and weavers, alpaca fiber artists and designers, Knowledge of the alpaca industry was incorporated into a small business course to assist students in learning about this niche segment of the textile and apparel industry.

Expressing an Inclusively Excellent Pedagogy

Katherine D. Lloyd, *Educational Leadership and Policy Studies, Morgan State University*

Faculty tend to enter academia without much instruction in pedagogy and with minimal teaching experience. For those of us who consider ourselves progressive educators, we need to ensure that we are using a teaching philosophy that engages students and makes the classroom a space where what is being taught connects with their experiences in everyday life. Incorporating an inclusively excellent framework into one's teaching could aid in this. Students who have an educational experience rooted in inclusive excellence develop civic understanding, intercultural competences, and cognitive skills. This qualitative case study investigated how Dr. Mitchell expresses her sensitivity to inclusive excellence in her pedagogy. A document analysis of her course syllabus, classroom observation field notes, and an interview transcript was conducted to answer this question. A content analysis of the data produced themes of her showing inclusive notions of excellence and attaining inclusive excellence. The findings discuss how she did this.

Generational Mentoring: Values, Practices, and Beliefs Passed From Faculty Mentors to Students

Michelle A. Maher, *Educational Leadership and Policy Studies, University of South Carolina*
Briana Crotwell Timmerman, *Biological Sciences, University of South Carolina*
David F. Feldon, *Teaching and Learning, University of Virginia*

In graduate education, faculty mentoring profoundly influences student development. This influence is likely attributable to the apprenticeship nature of the faculty-student relationship, recognized as a signature pedagogy in graduate education. However, little is known about the values, practices, and beliefs that students acquire from this relationship that they then pass to their own students as faculty mentors. We interviewed 20 graduate faculty in science, technology, engineering, and mathematics (STEM) fields about their experience writing for publication

with their own graduate mentors. We then asked them to describe their experience writing for publication with their own graduate students. We selected the context of collaborative writing because working in tandem to create a permanent record of disciplinary dialogue requires the expression of several scholarly values, practices, and beliefs. Additionally, faculty-student coauthorship is a common pedagogical practice in STEM graduate education. Qualitative analysis of faculty narratives revealed that mentoring patterns and practices are clearly passed from one scholarly generation to the next. Values of such as intellectual risk-taking, practices such as intertextuality ("my voice is overlaid with theirs"), and beliefs that affect authorship ordering decisions are some of many examples of generational mentoring identified in this study. Our findings provide insight into the nature of student learning outcomes resulting from faculty mentoring.

Hostos Center for Teaching and Learning on Tour: Sharing and Passing on Effective Strategies for Retention

Nelson Nunez Rodriguez, *Natural Sciences*, Christine Hutchins & Cynthia Jones, *English*, America Trinidad, *Education*, & Sarah Brennan, *Center for Teaching and Learning, Hostos Community College of The City University of New York*

Research into college retention has shown that interaction outside classrooms is key to retaining students, faculty, and staff. These interactions flourish at colleges where the college mission is explained, and subsequent actions support the expressed mission. Ideally, the mission saturates the community. The Hostos Center for Teaching and Learning (CTL) fosters open conversations that contribute to this idea of mission saturation. The center has become a place for conversation about ourselves; what we do and why we do it; our dreams and our needs. This is evidenced by the inclusive nature of the CTL Advisory Council and in CTL events taking place in department conference rooms during Center tour stops. The CTL brings together campus-wide community members who impact the learning inside and outside of the classroom. The CTL on Tour and other professional development initiatives nurture the campus culture of dialoguing about teaching and learning and reinforce the role of reflection and collaboration. Faculty and other campus-wide presenters are selected to demonstrate activities, share insights, and stimulate candid conversation in ways that are useful and that will engage participants in reflection and learning. The center continues to reach out to even the most resistant audiences to positively influence student academic life.

How Critical is Study Abroad to Language Education?

I-Ping P. Fu, *Foreign Languages and Literatures, Radford University*

How critical is Study Abroad to language education? Being a language teacher, it is an important question to address. In this research, I am interested to examine how students' learning styles affect their learning in different environments. To be more specific, I am interested to compare how students learn the language in the US classrooms vs. learning the language in China. In this research, I am also very interested to discover what students said about their one-month study abroad experience in China affecting their language learning and world views in 2009 and 2010.

In comparison to European languages, Chinese language has been ranked as a Level Four language by the United States Defense Language Institute and one of most difficult languages to learn. And yet, many college students want to learn Chinese for economic and political reasons. Many of them are curious and fascinated by the Chinese culture and language. Nevertheless, it is not surprising to hear students say, "It is a difficult language to learn, and it is very time consuming. However, it's also a very beautiful and exotic language that I'm very excited about learning it now." For the most part, students take pride in learning Chinese, and they are motivated to come to classes in the US. If financially affordable, most of them would also consider having a summer study abroad in China.

Being a tourist is easy, but studying abroad takes work to learn the language and the culture of the hosts. This report is a summary of a survey that I designed, which was given to students after their one month of study abroad in China. The purpose of this research was three-fold: (1) to identify learning styles of native English speakers and how learning styles affect their learning Chinese in the US and in China, (2) to identify factors that helped English

speaking students learn Chinese the most during the study abroad, and (3) to identify how China trip affected students' intellectually, psychologically and worldview.

The study was conducted at Radford University. The survey was given to fifteen native English speaking students, who took their study abroad in 2009, and ten native English speaking students, who took their study abroad in 2010. All of these students were in their second year of learning Chinese. All of them had experience in learning other languages up to three years in high school. Those languages were typically romance languages such as Latin, French, German or Spanish.

Implementation of a College-Wide First Year Experience Program: Establishing Community in a Large Inter-Disciplinary Course

C. M. Wood, *Animal and Poultry Sciences*, Eric K. Kaufman, *Agricultural & Extension Education*, & Renee Selberg-Eaton, *Human Nutrition, Foods and Exercise, Virginia Tech*

Departments in the College of Agriculture and Life Sciences (CALS) have long taught first year courses designed to help new students succeed at Virginia Tech. These courses are tailored to the needs of students in each department but they all have common elements. Two of the departments have won the university-wide Award for Excellence in Advising. This year, CALS is participating in the university's First Year Experience (FYE) program. The unique CALS model includes a large, college-wide one-credit course (ALS 2984; n=217 students) that is designed to encourage interaction among students across all participating disciplines (n=6 majors in 5 departments, plus Life Sciences undecided), coupled with department-level sessions designed to introduce students to their majors. The ALS 2984 course meets as a whole for six weeks, then by department for six weeks, then as a whole for three weeks. Students were divided into 29 groups of five to eight with as many different majors as possible represented in each group. In addition to information orienting students to college, the ALS 2984 course has a unifying project assigned to each group that requires teamwork to research, summarize, and present information on an approved topic. A cohort of 13 undergraduate peer leaders assist the student groups, with each peer leader providing support for two or three groups. The peer leaders are also responsible for planning and delivering one session on academic success in ALS 2984; their educational support is through a one-credit leadership development course (LDRS 2984). Additionally, six trained tutors offer sessions on Biology and Chemistry twice a week. The success of the college-wide FYE program is being assessed by comparing it to two control groups: concurrent with ALS 2984, the two largest departments (HNFE and APSC) are offering their traditional courses, APSC 1504 (n=71) and HNFE 1114 (n=63).

In Class Assessments to Improve Effective Teaching: An Examination of One Method

Tonya N. Saddler, *Education, Marywood University*

This paper examines the importance of classroom teaching assessment to improve teaching effectiveness. Pre, mid-term, and post assessments were administered to students enrolled in a doctoral level course (Models of Teaching) this past Spring semester. Findings suggest that course objectives were achieved and course content was retained from pre assessments (administered during the first class session) to post assessments (administered during the last class session). Findings have implications for faculty members interested in improving their strategies for teaching.

Incorporating Service Learning Into an Undergraduate Physiology Course

Sarah N. Blythe, *Biology, Washington & Lee University*

Service-learning, a type of experiential learning, has been shown to enhance students' understanding of course relevance, change student attitudes, encourage support for community initiatives, and increase student and faculty volunteerism. It has recently been suggested that service-learning should be incorporated into undergraduate public health and biology education. Therefore, to enhance student learning of primary course concepts and provide students with a hands-on experience in the public health field, I redesigned my 200-level Reproductive Physiology

course and implemented a multi-year initiative to promote sexual health awareness at Washington & Lee University. The following project description appears in the course syllabus, "Through readings and lectures, students will acquire valuable information regarding the human reproductive system, sexually transmitted infections, and contraception technologies. Sharing this information with the W&L community will benefit the health and well-being of the student body, and it will reinforce valuable scientific communication skills. Class members will collaborate with the W&L Office of Health Promotion to accomplish this public health initiative". In the first year of the sexual health awareness project, students worked in pairs to design informational fliers and web pages detailing the symptoms and treatments of specific sexually transmitted infections. The fliers were displayed campus-wide during the winter 2010 semester. The results of the students' efforts can be viewed at go.wlu.edu/STI. In the second year of the project, students worked in small teams to develop web pages, fliers, posters targeted a first-year students, and brochures about contraception. This project shows that it is possible to incorporate service-learning into an upper-level biology class without sacrificing course content.

Influence of IRB Ethics Education on Student Researchers' Perceptions of Risk

Christopher LeGrow & Melissa Atkins, *Psychology, Marshall University*
Kristen Stover, *Liberal Arts and Human Services, Mountwest Community and Technical College*

Researchers and IRBs often disagree about the risks associated with trauma-related research. Researchers contend that IRBs assume trauma research is inherently risky and has the potential to re-traumatize vulnerable individuals (Becker-Blease & Freyd, 2006; DePrince & Freyd, 2004). Research on trauma-exposed individuals, however, has shown participants do not generally find their research experiences traumatic or harmful (Schwerdtfeger & Goff, 2008). As a discipline devoted to the study and treatment of trauma-exposed individuals, Psychology will train the next generation of trauma researchers. As they begin their research training, do Psychology undergraduates share the concerns of IRBs or perceive trauma research as posing minimal risk? During their training, Psychology undergraduates often complete IRB-required ethics education. Does IRB-required ethics education increase Psychology undergraduates' perceptions of risk for trauma-related research? To answer these questions, 92 Psychology undergraduates enrolled in Experimental Psychology were administered a 15-item survey at the start of the course, after completion of IRB-required ethics education, and at the conclusion of the course. The survey assessed perceptions of: (a) trauma-exposed individuals' ability to assess the risks associated with participation in a trauma-related research study and to provide informed consent and (b) the likelihood trauma history questions will exacerbate trauma-related conditions. Results indicated at the start of the course students perceived trauma research as posing minimal risk. However, after completion of IRB-required ethics education, students perceived trauma-exposed individuals as: (a) less able to assess risk and to provide informed consent and (b) more likely to experience exacerbation of trauma-related conditions. The perception that trauma history questions are likely to exacerbate trauma-related conditions remained at the conclusion of the course. Throughout the entire course, students perceived individuals experiencing an emergency situation as unable to provide informed consent and trauma history questions about abuse, combat experiences, and incarceration as posing greater than minimal risk.

References

Becker-Blease, K., & Freyd, J. (2006). Research participants telling the truth about their lives: The ethics of asking and not asking about abuse. *American Psychologist, 61*, 218-226.
DePrince, A., & Freyd, J. (2004). Costs and benefits of being asked about trauma history. *Journal of Trauma Practice, 3*, 23-35.
Schwerdtfeger, K., & Nelson-Goff, B. (2008). The effects of trauma-focused research on pregnant female participants. *Journal of Empirical Research on Human Research Ethics, 3*, 59-67.

Innovative Instructor Strategies for Soft Skills Development

Richard J. Rateau, Eric K. Kaufman, *Agricultural and Extension Education, Virginia Tech*

In our increasingly competitive world, it is critical that college graduates enter the work-place with the appropriate skills to not only survive, but also grow their career. Current college graduates have not consistently acquired the skills needed for success in the workplace to continuously learn and thrive in our rapidly changing world. The

Virginia Tech College of Agriculture and Life Science must identify the specific strategies that best develop the needed skills for the success of the graduate and society. The purpose of the study was to identify innovative instructors' current classroom strategies for developing students' soft skills development and ability to continuously learn and thrive in our rapidly changing world. Qualitative interviews were employed for exploring innovative instructors' experiences using interpretive, constructivist, and naturalistic approach. Findings of the study detail five specific strategies innovative instructors follow in guiding their students in the soft skills development and their ability to continuously learn and thrive in our rapidly changing world.

Inquiry Infused with Technology: A New Paradigm for Higher Education Literacy Instruction

Rose Mary Mautino, David Carbonara, & Joseph Kush
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The use of the inquiry method is supported by John Dewy who believed that education starts with a learner's curiosity and inquiry leads to creating new ideas. This presentation introduces a model of inquiry-based literacy instruction infused with technology that implements a constructive approach to teaching and learning. The model describes pedagogy for a graduate reading disabilities class that combines cooperative learning, inquiry, presentations, and multimedia. It argues that in spite of the constant change that defines today's literacy instruction it is not necessary to rethink curriculum. Instead, we need to redesign our instruction to infuse inquiry method and technology. The literacy technologies of Skpe and mobile phones function as communication tools that guide candidates in the generation of concentric circles of lifelong learning and thinking. The use of computer-mediated communication tools, such as Skype have shown to have both social interactions as well as pedagogical benefits. Relatedly, the use of mobile phones within educational settings is becoming increasingly commonplace. It is the intent that candidates will have sufficient understanding and exposure to this process; therefore, candidates are encouraged to incorporate the design of inquiry and technology into their teaching practices.

Integrating Physical Activity and Play Across the Curriculum

Dolores A. Stegelin, *Teacher Education, Clemson University*

Play is important to the optimum development of students from preschool through middle childhood; many forces are at work to counter physical activity and play in the school setting. Technology creates new learning opportunities but frequently involves sedentary behaviors. Recess is being diminished or eliminated due to time pressure for on-task seatwork, preparation for routine testing, and earlier focus on reading and mathematics skills. Food options in school settings often include high caloric choices that contribute to childhood obesity. This presentation focuses on the importance of integrating play and physical activity across the curriculum. Research on the positive outcomes of play and physical activity in the learning environment reflects benefits to these domains: physical development and psychomotor wellbeing; cognitive development and ability to attend; social skills and emotional wellbeing; and creativity. Across the early and middle childhood curriculum, teachers can encourage children to develop physically active lifestyles, and they can model interactive instructional methods that engage students in physical activity in the classroom and on the playground.

Is the Socratic Method Dead in the Age of Technology?

Leon Geyer & Jessica Boatwright, *Agricultural and Applied Economics, Virginia Tech*

The Socratic Method has been touted for centuries for its ability to instill critical thinking and open-mindedness in students from any discipline. This discussion-based pedagogical approach uses sequences of spontaneous, probing questions to transform students from idle listeners to perceptive contributors. The role of the instructor is to challenge students to critically examine their own assumptions and those of others, to back up their assertions with evidence, and to use logic to come up with reasonable solutions to problems. The goal of Socratic questioning is to establish a cognitive mechanism for analyzing any situation or issue, a tool students can utilize throughout their lifetimes. As technology is increasingly used in education, the role of the Socratic Method in modern classrooms has

begun to be questioned: Will this classic pedagogical practice fade from collegiate teaching frameworks? Or can it be enriched by extending in-class discussion to the online environment? Various tools, such as threaded discussion boards, provide a virtual forum for students to post ideas and opinions and to receive feedback from the instructor. They can comment on and question their peers' assertions, just as they would in the classroom. Through what Berenfeld calls the "Infosphere", students can utilize online data bases, libraries, governmental websites, streaming news, any many other sources to introduce relevant, up-to-date information to the conversation. This virtual setting accommodates individual learning preferences and gives students a better sense of control over their learning environment. Technology can complement in-class Socratic discussion but can never fully replace it. Conversational elements such as tone of voice and facial expressions are lost online. The Socratic Method should not be abandoned in the age of technology. Rather, more research should be conducted to determine how technology can enhance this classical technique and successfully transfer its underlying principles to future generations.

References
Berenfeld, B. (1996). Linking students to the infosphere. *T.H.E. Journal, 23*(9), 76-83.
Larson, B.E., & Keiper, T.A. (2002). Classroom discussion and threaded electronic discussion: Learning in two arenas. *Contemporary Issues in Technology and Teacher Education, 2*(1).
Peterson, E. (2009). Teaching to think: Applying the socratic method outside the law school setting. *Journal of College Teaching & Learning,* 6(5), 83-87.

Junior Partnership at Blue Ridge High Performance Consulting: Engaging Students and the Application of Communication Skills and Knowledge in Practical Contexts

Addis Ainsley, Jeremy Butler, Brittany Case, Caitlin Herman, William Stephens, Terrence Strickland, Randy Taylor, Rebecca Wilbourn, Tiffany Woods, & William Kennan, *Communication, Radford Universtiy*

This poster provides a case study that focuses on the experiences of Junior Partners in the employ of Blue Ridge High Performance Consulting (BRHPC). BRHPC is a fictitious organization that has been created to provide an opportunity for graduate students enrolled in a seminar titled "Training and Development" to engage with real clients and to take their classroom knowledge and experience and utilize that intellectual capital to analyze and offer solutions for real world problems and challenges. The presentation describes the structure of BRHPC, the learning objectives, the learning process itself, and how this vehicle is used to engage students with classroom content from many of their classes and ultimately with clients. It also describes the relationship that evolves between students and clients who ultimately join the learning process as teachers and mentors. The presentation draws heavily from the burgeoning literature on student engagement and its purpose is to demonstrate how students can be deeply connected to learning through connections with projects and client teachers and mentors outside academe.

Keys to Successful Collaboration in Online Learning: Creating Group Wikis in an ESL Endorsement Class

Michiko Kobayashi, *Teacher Education and Family Development, Southern Utah University*

Most researchers agree that interaction is a critical component in successful teaching and learning. Collaborative activities can be incorporated in online courses and its impact on student learning has been discussed in various studies. Keys to successful online collaboration are the design of the activity and the instructor's effectiveness. In online learning, students can easily fall behind, due to lack of face-to-face communication and a feeling of disconnectedness. Some online students hesitate to ask questions, even if they do not understand class materials. Therefore, when assigning collaborative work in an online course, providing clear and detailed instructions at the beginning is particularly important. The assignment should be well structured and easy to follow. During the collaborative activity, the instructor must monitor students closely and provide support promptly. In the present study, thirty-three college students taking an online course were asked to create a group wiki on ESL instruction. The majority were on-campus students and a few of them were in remote areas. In this assignment, Wikispaces was used. The instructor provided step-by-step instructions on a handout and specific grading criteria for the assignment were also explained. To communicate with groups, students used a built-in discussion board on Wikispaces. All postings on the discussion board were examined to assess student's interaction. The results showed that although the

amount of interaction varied depending on the group, cooperative behaviors, such as confirming the assignment's procedure and providing suggestions or encouragements were observed in many groups. Several students also mentioned that the activity was enjoyable and helped them gain new knowledge. The major problem identified in this study was the imbalance of student's participation within a group. The study aimed to discuss the design of effective collaborative assignments in online courses and examine student's interaction during the activity.

Knowledge Building: Science or Art

Amna Yousaf, *Institute of Education and Research, University of the Punjab Lahore, Punjab, Pakistan*

Knowledge is usually associated with intelligence. People with high IQ are considered more knowledgeable. Knowledge building refers to the process of creating new cognitive artifacts as a result of common goals, group discussions, and synthesis of ideas. These pursuits should advance the current understanding of individuals within a group, at a level beyond their initial knowledge level, and should be directed towards advancing the understanding of what is known about that topic or idea. The theory "encompasses the foundational learning, sub skills, and socio-cognitive dynamics pursued in other approaches, along with the additional benefit of movement along the trajectory to mature education".

D.O. Hebb , a psychologist, concluded that there are two kinds of intelligence, A and B. Intelligence A includes many of the basic intellectual processes , and intelligence B includes intellectual knowledge and well learned skills . Similarly artificial intelligence (AI) Researchers says intelligence as a function of knowledge. Some researchers has concluded these concepts of intelligence as fluid intelligence which represent the physiological basis of Hebb's Intelligence A, and crystallized intelligence represented the intellectual knowledge and skills of Heeb's Intelligence B.

Keeping in view all these theories and viewpoints present paper aims to discuss knowledge is a result of a scientifically developed process or just an art how to increase in. The paper will be theoretical in nature and the results will provide a comprehensive view about knowledge building, different methods of knowledge building used by different individuals and how to increase efficiency in knowledge building.

References
Douglas, L.M, et al. (2006). *Cognitive Psychology*. London: Sage Publications.
Wilhelm, O. et al. (2005). *Handbook of Understanding and Measuring Intelligence*. New Delhi: Sage Publications.

Knowles in the Balance: Imagining Sustainable Change in a Senegal Capacity Building Education Project

Patrick Guilbaud, *OIRED*, Ozzie Abaye, *Crop and Soil Environmental Sciences*,
A. L. "Tom" Hammett, *Wood Science and Forest Products*, & Fatou Gueye, *OIRED, Virginia Tech*

This session is to present and discuss a faculty development model that is being implemented at the Ecole Nationale Supérieure d'Agriculture (ENSA) of the University of Thiès (UT) in Senegal. Supported by a significant USAID capacity building grant awarded to Virginia Tech, the faculty development intervention at UT-ENSA is oriented towards improving the quality of training offered to students, alumni and professionals who are affiliated with the institution. With a focus on improving the career-readiness level along with the rate of employability of all constituencies served for UT-ENSA, the implementation team from Virginia Tech selected a training approach for UT-ENSA that is based primarily on Knowles' andragogical concepts and principles. We highlight, in this session, preliminary findings, and insights learned through the activities implemented as part of the intervention.

References
Knowles, Malcolm S. (1978). *The Adult Learner: A Neglected Species*. Houston: Gulf Publishing Company.
Knowles, Malcolm S. (1989). *The Making of an Adult Educator*. San Francisco: Jossey-Bass.

Learning About Environmental Sustainability Through Real-Time Access to Weather and Water Quality Data

Parhum Delgoshaei & Vinod K. Lohani, *Engineering Education, Virginia Tech*
Divyang Prateek, *Electrical and Computer Engineering, Virginia Tech*

LabVIEW Enabled Watershed Assessment System (LEWAS) enables students to remotely monitor water quality and flow data from an impaired stream (Webb branch of Stroubles Creek) and access weather quality data for the site. The collected parameters such as the amount of dissolved oxygen and turbidity are indicators of the streams health. Therefore, through a web-based real time monitoring, students can monitor how the health of the stream is influenced by manmade factors such as construction especially during runoff related to heavy rainfall.

One of the educational objectives of freshman engineering course, ENGE 1024, is raising students' awareness in environmental and energy sustainability. In this regard, for the past two offerings of this course, students enrolled in the course were provided access to the LEWAS system. According to data from exit surveys collected at the end of each semester the course is offered, students have found the setup both useful and motivating in learning about the environment. This fall, for the first time, students will be provided with a variety of water and weather environmental parameters from the field as opposed to access to parameters corresponding to lab samples. Accordingly, a short survey will be administered to measure to impact of real time access to field data. Student attitudinal responses will be collected prior and after they have been provided real time access to environmental sensors installed in the field. In addition, the impact of the system on raising student motivation will be assessed by collecting student perceptions on the value they place on environmental monitoring and their expectancy to succeed in it. The responses will be interpreted in the framework of value-expectancy theory of motivation.

Leveraging Teaching and Learning Capacities through Regional Collaboration Among Academic and Non-Academic Partners

Chaya R. Jain *Virginia State University*

As the bedrock of creating and conveying knowledge, one of the key purposes of pedagogy is to create, sustain and nurture economic viability within local communities and the world at large. However, three defining occurrences of the 21 Century: the continuous proliferation of technological advancements, the declining global economy and the growing competition among the emergent knowledge communities necessitate a reconsideration of the traditional pedagogical practices. A dynamic pedagogical approach involves maintaining a competitive edge of knowledge where the purpose of education goes beyond a simple generation and transmission of knowledge. As a creative and feasible approach, this presentation discusses a contemporary method we call "feeder partnership" and involves a market-oriented, teaching-learning model of regional collaboration among the academic and non-academic institutions. Modeling two recent regional initiatives within Central Virginia; the Commonwealth Center for Advanced Manufacturing (CCAM) and the Virginia Logistics Research Center (VLRC), this demonstration displays the generalizable dynamics involving the feeder partnership model. The proposed five-step process can be used in any teaching-learning setting; however, will be particularly useful to the smaller, emerging research institutions in building and expanding their teaching-learning capabilities and capacities. In addition to the potential positive outcomes, this presentation also discusses challenges and caveats of the collaborative model.

Linking the Classroom with Real World Experience using Work-Integrated Learning and University-Industry Partnerships

Annie Pearce & Kathleen M. Short, *Department of Building Construction, Virginia Tech*
Christine Fiori, *Myers-Lawson School of Construction, Virginia Tech*

There is a gap in engineering education with regards to understanding the human or social barriers to sustainability that inhibits the successful implementation of engineering solutions in practice. This research combines undergraduate research and work-based learning or internships to create a program for SLICES whose aim is to

create an inquiry-based internship experience that aligns well with the goals of the participants, and taps a larger more diverse body of students than is typically able to be reached by undergraduate research programs alone. There is also a need to fill gaps in the existing knowledge base about the impacts of such programs on diverse student populations, the efficacy of hybrid experiential learning methods for sustainability pedagogy, and the role of such programs in setting the state for positive change toward sustainability in industry. The research is currently being conducted using sustainable practices as a base but the goal is to expand into other areas of engineering research and other disciplines. The program developed by SLICES allows students, industry, and faculty to benefit through work-integrated learning and university-industry partnerships.

Logic Outside of the Classroom: An Online, Blended, and Diagnostic Assessment Approach

Christopher Runyon, *Graduate Psychology, James Madison University*
Tracy Lupher & Thomas Adajian, *Philosophy, James Madison University*

We have designed a completely stand-alone online logic course and also a blended-learning logic course. The blended-learning logic course capitalizes on the benefits of both online and face-to-face instructional opportunities. We also have started applying diagnostic classification modeling (DCM) to logic assessments, enabling the instructor to identify students' proficiencies in specific attributes necessary to master important concepts in logic. We present example course materials and suggestions for assessments in a content-neutral manner, allowing other instructors to adopt similar instructional techniques and assessment methods for their own courses, regardless of the subject matter. We also further explain DCM, which gives the instructor more precise information about what exact skills each student has mastered, allowing for more pointed or personalized instruction at the individual level in smaller and moderately-sized classrooms.

Looking Forward and Backward: The Three-Day Exam Process

Michael J. Alexander, *History, Virginia Tech*

In my five years of teaching, it has become readily apparent that many students do not possess good study skills for exams. To make matters worse, they *think* they know how to study. All too often it seems that educators expect the students to possess this specialized skill, but without ever directly addressing it in the classroom. I address this fundamental problem by setting aside three class periods for each exam. First, there is a day of review prior to the exam that relies on what I call "concept mapping" the exam material. A concept map is a multi-dimensional way of structuring information in which ideas are connected by directional arrows. In the process, the students take their "linear" notes and manipulate them so that they can more clearly see the connections between ideas, events, and evidence. The experience of concept mapping always rates highly in my evaluations, as one student said, "I am starting a concept map movement in all English/academic writing classes!" Second, there is the day of the exam, which consists of an essay question that the students choose from two options. Third, there is the post-exam day of reflection. This is the most important component. I ask the students to first confer with their neighbor about *how* they studied for the exam. We then collectively discuss studying and note-taking strategies, focusing on both those that worked *and* those that did not. Said one student, "I did find this useful to learn how other people had been studying or taking notes. It allowed me to gain a better understanding of how to take notes in the class and to review for the exams. I also thought that learning about others' good note taking habits was also good."

"Me" Learning: A Constructivist Approach to Web Evaluation

Candice Benjes-Small, Lisa J. Vassady, & Jennifer R. Whicker, *McConnell Library, Radford University*

The ability to critically evaluate websites to determine the credibility and appropriateness of the source is an essential component of establishing an information literate student. A review of the literature suggests that the old school method of providing a checklist of criteria for web evaluation, utilizing criteria similar to those used to evaluate traditional published sources, has proven ineffective as students are unable to use it to effectively evaluate ambiguous sources and instead use it as a black and white measure for sources made up of a variety of shades of

gray. Furthermore, students have a tendency to memorize the criteria, without being able to effectively apply them, leading to simplistic strategies, such as deeming all .com websites as unreliable. Seeking a way to address these deficiencies, we turned to a constructivist approach. Constructivism is based on the theory that students learn best based on their own experiences through active learning. It encourages students to do or interact directly with a task, essentially teaching themselves, rather than being a passive learner. Excited by the possibilities, we developed an exercise for Web evaluation that emphasizes self-learning. In the class, we direct students to a particular website and, providing minimal guidance, ask them to determine whether the site is credible. Students examine the site and compile a list of reasons defending their determination. The instructing librarian then facilitates a discussion related to the students' findings; this conversation organically leads to the development of general criteria for evaluation, such as who, what, where, when, and why. But rather than framing this as a checklist, these general categories are viewed as context-sensitive. Students can now use their own experience to predict what criteria may be ideal for Websites on any particular topic.

References

Meola, M. (2004). Chucking the checklist: A contextual approach to teaching undergraduate web-site evaluation. *Portal: Libraries and the Academy, 4*(3), 331-344.

Metzger, M. J. (2007). Making sense of credibility on the web: Models for evaluating online information and recommendations for future research. *Journal of the American Society for Information Science & Technology, 58*(13), 2078-2091.

Dahl, C. (2009). Undergraduate research in the public domain: The evaluation of non-academic sources online. *Reference Services Review, 37*(2), 155-163.

MedPUC a New Medical School in Rio de Janeiro: an Innovative Education Strategy

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Medical education must to adapt to the constant changes in society and scientific progress and to accommodate the needs of the Millennial Generation, which makes up the majority of students entering the university in Brazil. To build a modern education setting, adequate to the millennium generation, and to promote engagement of the student, a multidisciplinary team was structured to develop a new medical school in Rio de Janeiro. This project was a collective participation of educators and health professionals in Brazil and US committed to improving medical training. We designed a course where the first two years (Cycle 1) focus on the mechanisms of action/reaction to any underlying health/disease process at both the individual and the community. It will consist of: (1) as non-structured module that corresponds to the experience in the Brazilian Public Health System to allow building individual skills experience based, and (2) structured component, which is divided into two blocks: (2A) the Health of Individual presented in the form of 12 modules that corresponds to organs and body systems and address the biological aspects of the human integrated into the lifestyle of the patient and relevant ethical discussions. It will be studied with emphasis on path-physiology of disease and health processes and principles of therapy and (2B) Health of Community which will learn the mechanisms of health and social determination of the principles of public health measures to reduce health inequalities. This goal incorporates different teaching methodologies always focusing on active learning: PBL, POGIL, Self-learning and Computer labs, and Classroom Participation. The discussion will take place primarily around affordable medical conditions in primary care and prevalent public health issues. These activities complement the further training in medical skills laboratory. In conclusion we have an innovative program that promotes integration of different disciplines and encourages students to actively participate in their own learning. The use of active teaching methodologies with emphasis on mechanisms underlying health-disease processes and therapeutic principles, along with early participation in the healthy system does contribute to a meaningful and lasting learning.

Multi-Modal Learning of Practice Skills: Videotaping, Discussion, and Skill Assessment

Diane M. Hodge, *School of Social Work, Radford University*

Multi-Modal learning reinforces the learning experience because the lesson is repeated in multiple modes: visual, aural/oral, read/write, and kinesthetic (Fleming, 2001). In learning a practice skill, students benefit from seeing the skill demonstrated, talking about the skill, reading and writing about the skill, and doing the skill themselves (Gelman & Tosone, 2006; Seabury, 2005). This is particularly critical in learning social work practice techniques, as students move from the academic arena to the practice arena. Students must develop a level of proficiency and confidence in order to provide clients with "best practice." To facilitate learning these basic therapeutic techniques in a time-limited and judicious way, students in a social work practice class developed a role play, demonstrating best practice techniques within the parameters provided by the instructor. The techniques explained in their textbook were incorporated into the role play, which was performed for the class and simultaneously videotaped. After the "live" play, the video could then be shown again so that class peers could provide written evaluation and verbal feedback on identifying the techniques and how well the techniques were demonstrated. Likewise, this process provided a chance for those doing the role play to view and respond to their peer's feedback during the discussion period. The instructor also provided both verbal and written feedback. A survey consisting of questions about how helpful the process of multi-modal learning had been was provided to the class. Students evaluated each step of the process on a 10-point Likert scale, ranging from "not useful" to "extremely useful." Results indicated that students found the process of preparing a role play and discussing it to be very useful while written feedback from peers and the instructor was less useful. Students clearly prefer multi-modal learning experiences over simple reading and reviewing of practice techniques.

Multiculturalism in Practice: Learner-Centered Instruction Across Two University Programs

Andrea Todd, *Language and Culture Institute, Virginia Tech*
Norma Day-Vines, *Counselor Education, Virginia Tech*

It is the exception rather than the rule for two university programs to explore common ground for working collaboratively to enhance each other's needs and mission. The Virginia Tech Language and Culture Institute (VTLCI) and the Counselor Education Program (CEP), both located at Virginia Tech's Northern Virginia Center, have begun a partnership that greatly enhances the educational experiences of students enrolled in English language training and graduate students enrolled in multicultural courses offered as part of the master's and doctoral degree programs in Counselor Education.

The VTLCI program sought assistance with issues of multiculturalism and "culture shock" affecting the international students studying English as a second language. Anxiety resulting from the loss of "familiar signs and symbols of social intercourse" (Oberg, 1954, p. 1) was causing various degrees of distress among the international students, and the CEP was keen to help through presentations to the VTLCI student body.
In return, a group of VTLCI students volunteered to be interviewed by graduate students enrolled in the CEP's course on multiculturalism to better understand the similarities and differences between their culture and U.S. culture. This face-to-face interaction served to enrich the students' classroom learning through an authentic learning experience, one that is "relevant from the learner's perspective and situated within appropriate social contexts" (Stein, Isaacs, & Trish, 2004, p. 239). Authentic learning has been shown to "assist students to develop appropriate and effective understandings," by bridging formal learning and learning within real-life communities (Stein, Isaacs, & Trish, 2004, p. 239).

The collaboration between the VTLCI and CEP is just beginning. Both programs are planning for pre- and post-testing of students prior to future interactions to gauge learning outcomes. The benefits to both programs, currently anecdotal, will be researched further.

References

Oberg, K. (1954). Culture shock and the problem of adjustment to new cultural environments. Worldwide Classroom Consortium for International Education & Multicultural studies. Available at: http://www.worldwide.edu/travel_planner/culture_shock.html

Stein, S.J., Isaacs, G., & Andrews, T. (2004). Incorporating authentic learning experiences within a university course. *Studies in Higher Education, 29* (2), 239-258.

Nursing Idol: An Intellectual Competition

C. Bonnie Dixon, Mary Gilkey, & Alice Doeppe
Nursing & Health Technologies, Germanna Community College, Locust Grove Campus

Faculty and students are constantly looking for new and innovative strategies for learning and applying the didactic and practical knowledge gleaned from instruction. The ultimate goal of this type of curriculum is to combine both forums into one practice. After graduation, the NCLEX is the first test of this practice and with success of this test it is one to a position with active practice of lessons learned. Nursing Idol is an innovative tool that we have used to prepare our students for the first test of their practice.

Online Course Delivery: How to Assess the Process

Chris Burkett, *Education Division, Columbia College*

Undergraduate and graduate students at Columbia College were surveyed after completing education online or hybrid classes. Students answered questions that evaluated their experience with this new method of class delivery. From this data, information about student's attitudes and impressions of the online format were revealed and analyzed. Results and recommendations were presented to the faculty.

Online Design Studios as Scaffolding for ePortfolio Development in a Capstone Course

Penny Thompson, *College of Education, Michigan State University*

Guiding students through the process of developing an online portfolio requires attention to all aspects of the process: design, content development, and mastery of a rapidly evolving set of technology tools. Furthermore, instructors must balance the need to support students' personal choice and ownership of their portfolios with the responsibility to make sure they present themselves well on the Internet. To address this challenge in our online Master of Education capstone course, we use an online design studio approach where students create their portfolios incrementally, posting drafts of each element quickly and then refining them through discussion and feedback sessions within a small group of "critical friends" (Costa & Kallick, 1993). This approach creates a supportive environment where students explore and learn both the technology and the design principles important for creating a web-based portfolio, while simultaneously reflecting on their learning in the master's degree program. These online design studios provide support for the students while leaving the instructors free to guide the entire portfolio development process in a holistic way, keeping our eyes on the "big picture" rather than allowing one aspect of the course (web design, for example) to dominate at the expense of other equally important elements. This autonomous design studio format also helps the students, most of whom are at the end of their formal schooling, to develop and refine the skills they will need to be lifelong learners in a field where rapidly changing technology plays an increasingly large role. Based on voluntary comments seen in the student evaluations at the end of each semester, students find the online design studio experience to be enjoyable and supportive, and often credit their "critical friends" as the main reason they were able to develop their technology skills and create polished, professional looking portfolios in a single semester.

References

Costa, L. A., & Kallick, B. (1993). Through the lens of a critical friend. *Educational Leadership*, 51(2), 49.

Online Mentoring: Going Beyond the Possible

Gina Mariano, *Psychology, Troy University*

Can you be an effective mentor when your primary mode of communication is through email? Mentoring involves continuously balancing the psychosocial, vocational and role modeling needs of the mentee. Students report that the relationship with their mentor is one of the most importance aspects of their learning experience in undergraduate education (Malachowski, 1996). Positive attributes of mentors include interest, patience, positive personalities and supportiveness (Sinclair, 2003), but how can these attributes be effectively expressed in an online environment? This poster presentation will focus on the most effective strategies for ementoring along with strategies for building social networks for both the ementor and mentee using web 2.0 technologies. The strategies and activities discussed are meant to enhance interpersonal interaction and help bridge the divide that can occur between ementors and mentees.

Students often seek academic advice, as well as career guidance, personal assistance and encouragement and moral support (Malachowski, 1996) from their mentors. How can we best assist students not only in career growth, but personal growth as well, when the predominate mode of communication is online? How can we be role models if we cannot see our mentees in person? What can mentees learn from mentors through an email?

Responding to student needs now may require integrating a number of technologies. The ability to cheerfully and accurately communicate the same message over and over again (Steele & Carter, 2002) can become frustrating. Just what does it mean to be an e-mentor? There are a number of Web 2.0 technologies to help assist and manage communication among mentors and mentees, including templates to store frequently used responses. The technologies available, along with activities that promote communication can help grow the relationship between mentor and mentee in an online environment.

References

Malachowski, M. (1996). The mentoring role in undergraduate research projects. *Council on Undergraduate Research Quarterly*, 91-106.

Sinclair, C. (2003). Mentoring online about mentoring: Possibilities and practice. *Mentoring and Tutoring*, 11(1), 79-94.

Steele, G. & Carter, A. (2002). Managing electronic communication technologies for more effective advising. The Adademic Advising News, 25(4).

Patchwriting as Pedagogical Opportunity for Remediating Inappropriate Source Text Use

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Non-prototypical plagiarism is the incorrect use of source text without the intent to deceive the reader as to the source of the ideas in that text (Pecorari, 2003). Students inexperienced in a given discourse may use techniques such as patchwriting (Howard, 1999) to alter and incorporate text in ways that are deemed unacceptable by their instructors while attempting to use and acknowledge source text correctly. The academic tradition has been to treat instances of plagiarism as prototypical or malicious, but given that much plagiarism is not prototypical (Jones & Freeman, 2003; Flowerdew & Li, 2007; Yilmaz, 2007), we can instead address it as an educational opportunity. We examined and classified instances of problematic text in the grant proposals of 13 science, technology, and engineering graduate students. Students were alerted about problematic passages, referred to an online resource on appropriate paraphrasing, and asked to remediate their text as best they could with no additional instructional intervention. We present a textual analysis of the changes the students made, and suggest that the types of changes (synonym substitution, structural grammatical change, etc.) support patchwriting as a developmental phase through which we can help to guide our students as they mature as writers. By better understanding the strategies students already use to modify text, we can guide them from more rudimentary strategies to the sophisticated strategies necessary for appropriate text use.

Pedagogical Analysis: On-Line Web Course Creation for Interior Design Programs

Renee K. Walsh, *Department of Interior Design and Fashion, Radford University*

My area of research encompasses creating web based courses for Interior Design classes. Can highly visual and interactive interior design courses successfully make the translation in to a web based course? I believe so. I address two different types of classes within an interior design programs curriculum; the traditional lecture oriented class and the studio course. Through my research I seek to prove that each type of course can be developed into a web based course by using different formats of on-line development. The students' expectations of technology need to be met by educators and institutions. Through my research I have found that on-line course development solved several educational problems. Highly visual majors like Interior Design create a difficult translation to a web based course. Technology has the ability to convey design literally and visually. Through my research I have found that using the four models for learning developed by Diana Laurillard (1993); learning through acquisition, discussion, discovery and guided discovery, support an on line course format. All the benefits of the four models of learning are explored and integrated in my research of on-line course development. In my creation of online courses and supplements, the results have been supportive in my theory of the need for on-line course development for interior design courses. Continued research, revisions and development improve the quality of my creation of on-line courses. In my research I continue to keep up with on-line teaching technological advancements and use them to develop supplements and replacements to interior design lecture and studio courses. My research is infinite in its evolution but integral to the student and the universities symbiotic relationship and growth.

References

Blair, T. (1997). *On-line Teaching: Tools & Projects*. Retrieved from
     http://wwww.info.ox.ac.uk/jtap/reports/teaching/chapter1.html
Sangster, G. (1995). *The World-Wide Web: Its Uses as a Teaching Tool*. Retrieved from
     http://www.info.ox.ac.uk.jtap/reports/teaching/chapter4.html
Laurillard, D. (1993). Rethinking University Teaching.
Power, Michael, The emergence of a blended online learning environment. *Journal of Online Learning and Teaching,* Vol.4, No.4, December 2008.

Place for Pedagogy in Portuguese Higher Education Legal Documents at Post-Bologna Period

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This paper's purpose is to contribute to question Portuguese national policies in order to understand how these policies incorporate (or not) the pedagogical issues as a necessary element in higher education quality demand. Paper is about to identify and analyze, in the Portuguese legislation post-Bologna, inducing elements for changing Higher Education Pedagogy.

Practicum Challenges: Skills-Based Workshops for Standing up to Intimidating Adults

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When faculty are faced with a closed curriculum, an option is to offer voluntary, non-credit workshops for their students. For example, in a teacher training program, much time is spent teaching students relevant aspects of child and adolescent psychology, and the associated methods for classroom management and leadership, but little, if any, time is spent helping students learn how to manage conflict with adults with whom they will interact in their practica as well as their professional careers, e.g., parents, colleagues, supervisors. An extensive database search revealed no resources on how to teach education students how to assertively handle parents, particularly if the parents presented their issues in a verbally aggressive manner. To address this long-standing issue, that may not be amendable to curriculum changes at various universities, a very interactive, hands-on applied assertiveness skills workshop was designed for teacher education students. This voluntary, non-credit workshop is suitable for professors without a psychology degree to present to their students. Outcome data revealed encouraging trends towards increasing

students' levels of confidence in standing up to verbally aggressive people, their perceived levels of ability to handle such conflict, and their levels of fear/anxiety about being in such situations. Most importantly, these students seemed to experience a positive shift in their thinking about their abilities to defuse situations involving verbally aggressive adults. This interactive presentation will inspire faculty to offer workshops to supplement the curriculum and will provide ample details on how to run a successful workshop. An extensive handout package will be available to further enhance the audience's capability to run training workshops that can be used in any situation in which verbal aggression is an issue.

Professional Development Motives: Engaging Faculty to Learn

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This study examines faculty motives to participate in professional development (PD) activities or workshops provided by their employers. The value of this data works to advance the commitments faculty have to the teaching profession and practically provides staff and administrators tools to engage professors to attend PD's. Research questions examined the way faculty think about PD as a model to support their own learning, factors which promote PD attendance, and the role between pedagogical knowledge and faculty beliefs. One hundred fifty nine faculty responded to a 6 question survey which gathered both quantitative and qualitative data. Faculty members who participated in the study worked at either a community college or pharmacy college and had expertise in a variety of disciples (i.e. Pharmacy, Computer Science, Humanities, Education, Basic Sciences, Communication, History, etc.). Faculty experience ranged from those just beginning their profession to those who are nearing retirement. In addition to the survey, interviews were conducted with 10 faculty (selected at random), to uncover reasons and further elaboration of survey responses. Data revealed practical application topics and promotion/tenure recognition as most important to faculty when considering to attend a PD. Respondents (76.6%) revealed they are personally committed to improving their teaching skills and knowledge, but felt they had no time to do so. Similarly, release time lead as the most valuable incentive institutions could provide to entice increase participation, but is rarely offered. Views describing effective teaching practices and faculty member's personal degree of satisfaction were also examined. This research shows promise toward engaging faculty to attend PD initiatives and contributes to the design of PD programs.

Program-Targeted Management of Education

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The attempt of the analysis of scientific literature and practical experience of teaching and leadership of department at the university to reveal the role of targeted program management principles and show how its implementation today has been made. We consider important to distinguish between program-based approach as a system of principles that define the overall strategy and program-targeted method as specific ways to implement these activities in accordance with the principles of this approach. The program-target approach is the integration and synthesis of basic management principles: target (focus on outcome), complexity, communication goals and resources, concreteness, unity, territorial and sector planning.

Promoting Persistence in Online Calculus Through Just-in-Time Learning Modules

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High failure rates in first-year calculus courses at the postsecondary level have been attributed to poor preparation at the secondary school level. This project addresses problems in mathematical understanding by providing just-in-time learning support for students struggling in first-year calculus. The first stage of the project involved problem identification, and the second stage involved a search of the literature in areas such as student performance in postsecondary mathematics, technology supported mathematics learning, and approaches to mathematics instruction.

The third stage involved the development of an authoring tool and five modules. The fourth stage involved the evaluation of the modules. After being evaluated by student testers, and content and instructional design experts some design changes were made to the modules. A second design cycle was initiated in order to improve the authoring tool and the learning support offered by the modules.

Re-Orienting the Liberal Arts: The Olive Experiment

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Zeynep Delen, *Chemistry, Boğaziçi University, Istanbul, Turkey*
Christian Wernz, *Engineering Science and Mechanics, Virginia Tech*
Richard Blatchly, *Chemistry, Keene State College*
Meltem Turkov, *Sociology, Işik University, Şile, Turkey*

Here we describe an integrated and multidisciplinary approach to the understanding of a topic of central importance to a local community, in this case, the small town of Yeni Foca, Turkey. In a two-week summer program called Zeytin, we created a learning community in which the traditional roles of teacher and student were modified into a more fluid continuum. Our topic, the Olive, allowed us to examine complex questions in which the scientific, cultural, historical and economic facets could be examined. By exploring the composition of olives, the local heritage and oral history of olive picking, and exploring how communities make decisions about olive production we set up a formal curriculum. This was complemented by internships with local merchants and craftspeople, visits to archeological sites and olive oil production facilities, and meetings with local political leaders. As a majority Moslem country that has experienced enormous economic growth and vitality, Turkey represents a vibrant mixing of cultures, ethnicities, and religions. Yet educational opportunities are based on outdated models that fall short in preparing its citizens for the future. Our collaborative program demonstrates how best practices of liberal arts teaching can be applied to a topic of great local interest.

Revolutionary Curricula: Toward a Radical Pedagogy in Teacher Education

Angelo Letizia, *Educational Policy, Planning and Leadership, The College of William and Mary*

Dave Hill (2006) has argued that most traditional teacher education programs in the United States and Europe primarily focus on instructional methods and disciplinary techniques in the classroom. Hill argues that teacher education programs must also teach potential teachers critical skills for analyzing social, economic and political problems facing public education today, for instance, the growing inequity between high and low income students. This practice session offers a new tool for potential teachers to critically analyze current problems facing education. However, this session will go beyond Hill's suggestion. In an age where teachers, administrators, taxpayers and students are inundated with a seemingly endless stream of information regarding the problems and possible solutions facing public education, a tool to critically analyze this information may become increasingly necessary. Hill suggests the incorporation of aspects of critical theory, namely the notion of the dialect. Following Hill, this session will draw on the notion of dialect as elucidated by the critical theorist Herbert Marcuse (1964). In addition, this session will also draw on concepts derived from postmodernism, namely the notion of simulacra (Baudrillard, 1994, Lather, 1993). The hope is to create a critical tool for teachers to be able to assess the problems facing higher education, and tool that can be taught in teaching education programs.

References

Baudrillard, J. (1994). *Simulacra and simulation*. Ann Arbor, MI: The University of Michigan Press.
Hill, Dave. (2006). Class, neoliberal global capital, education and resistance. *Journal for Critical Education Policy Studies,* 36, 525-545.
Lather, Patti. (1993). Fertile obsession: Validity after poststructuralism. *The Sociological Quarterly,* 34, 673-693.
Marcuse, Herbert. (1969). *One-dimensional man: Studies in the ideology of advanced industrial society* (2nd ed.). Boston, MA: Beacon Press.

Secrets to Teaching Online: Things You Should Know

Melanie Shaw & Scott W. Burrus, *Educational Leadership and Policy Studies, Northcentral University*
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Anyone interested in pursuing an online teaching career must diligently apply for open positions and document each step taken. Like most jobs, opportunities in distance learning are competitive. Moreover, the application process can be very time consuming. With the growth of the Internet, online programs in higher education have grown exponentially. This article presents information for those interested in securing jobs teaching online.

Self-Efficacy and Student Academic Achievement: Challenges and Opportunities

Nasser A. Razek & Sandra C. Coyner, *Educational Foundations and Leadership, The University of Akron*

Building upon the self-efficacy relation to academic achievement, this qualitative study examined the influence of Saudi students' experiences on their self-efficacy beliefs for academic achievement. Following observations and document reviews, data were collected from open ended interviews with students, administrators, and professors at Riversdale State University (a pseudonym) to explore the role of self-efficacy beliefs for academic achievement. Themes included participants' choices of programs, their academic performance levels, the amount of effort they put towards academic achievement, and the amount of perseverance they show on degree attainment. Findings revealed that various aspects of self-efficacy were causes or influences on Saudi students' achievement at the host institution. The recommendations show how various aspect of the theory can be utilized by academic departments, student affairs divisions, and faculty members to increase Saudi students' self-efficacy for academic success.

Service Learning as a Pedagogical Tool: Faculty's Insights

Katie Barrow & Monica Kimbrell, *Human Development, Virginia Tech*
Amanda Biviano, *Curriculum & Instruction, Virginia Tech*
Jennifer Cook, Beatriz Lima, & Jennifer Wagstaff, *Counselor Education, Virginia Tech*
Jonathan Manz, *Educational Leadership, Virginia Tech*

Service learning allows the connection of knowledge learned in the classroom with its practical application in a community setting. Due to its intricate and sometimes time-consuming nature, service learning is not readily utilized in classroom settings. The purpose of this project, then, is to understand the motivation of faculty members employing this learning tool and to uncover the learning outcomes they desire for their students. During the months of October and November 2011, seven faculty members from two mid-Atlantic universities will be interviewed in a semi-structured format, and their responses will be analyzed using constant comparison analysis. This study will result in a descriptive portrait that aims to answer the following questions: Why do faculty members choose service learning as pedagogical tool? What are faculty members' experiences with incorporating service learning in the classroom? What do faculty members hope to be the desired learning outcome(s) of students who engage in service learning?

Service Learning Opportunities Within the Sciences

Maggie Bobbitt Bump, *Chemistry, Virginia Tech*

Students enrolled in Organic Chemistry, typically in their sophomore year, are often still undecided about their future goals. Some are considering teaching or working with the community in some capacity. One opportunity offered to students in Organic Chemistry 2535 and 2536 is the chance to work with primary and secondary students, teaching chemical reactions and doing demonstrations. These activities are mainly organized by Dr. Bump or the Chemistry Club at Virginia Tech. They include chemistry open houses on campus and workshops held at area schools. As a part of the Organic Chemistry course, these are offered as ways to earn one extra credit point in the

class. This open-ended point can also be earned in numerous other ways. With over 400 students taking the course, typically 70% earn the point, and of these 15% choose to earn their point by volunteering with a chemistry program.

Service Learning: An Integrative Approach to Facilitate Leadership, Practice Group Cohesion, and Promote Community Engagement

Elizabeth Gagnon & Katherine Cave, *Leadership and American Studies, Christopher Newport University*

A review of the relevant literature suggests that service learning has a place of increasing prominence among institutions of higher education as the myriad benefits of its use become more widely understood and documented. Service Learning is a pedagogical model that integrates course-based academic learning with relevant community service. As part of the course requirements, students participate in a community engagement activity that meets identified community needs. Students reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, a deeper understanding of community concerns, and an enhanced sense of civic responsibility. This poster presentation discusses an innovative service learning course designed to promote community engagement while teaching principles of leadership and group dynamics. Course design, learning outcomes, and benefits to community partners are presented, while illustrating the ways in which the service project enhances student learning. This exemplar of service learning provides an implementation model that can be easily adopted by faculty across different disciplines, as well as a forum for the general discussion of this important pedagogical tool.

Silence in Teaching and Learning: Perspectives of a Nepalese Graduate Student

Krishna Bista, *Educational Leadership and Policy Studies, Arkansas State University*

The nature of silence is complex in any classroom with international or domestic students. Instructors, sometimes, fail to recognize the classroom silence of foreign students unlike their native counterparts. With an insider perspective by the author, this paper explores the concept of silence among international students by examining the existing body of literature relating to cultural norms. It also suggests a number of ways of dealing with silent students in a diverse classroom setting.

Skating Through Gen-Ed: Are Business and Professional School Students Left Behind?

Gary R. Schirr, Wil Stanton, & Angela Stanton, *Marketing, Radford University*
Laurel E. Schirr, *Marketing, Virginia Tech*

Two recent articles have focused on an alarming underperformance by business students in their first two years of college. Despite the strange and easily-debunked inference that this underperformance was related to the pedagogy in the business school curriculum, the articles still raised an important issue: During the period of their ''core'' or "Gen-Ed" studies business students should improve basic skills such as writing, but evidence indicates that they significantly underperform arts & sciences students in learning these skills. This article discusses possible causes and ways to address the underperformances of business and other non-arts & science majors – a problem business and professional schools must not ignore.

References

Arum, R. & Roksa, J. (2011), *Academically adrift: Limited learning on college campuses*. Chicago, University of Chicago Press, 259.

Arum, Richard, Josipa Roksa, and Esther Cho (2010). Improving undergraduate learning: finding and policy recommendations from the SS RC – CLA longitudinal project. (http://highered.ssrc.org/)

Glenn, David (2011a). Business educators struggle to put students to work. *The Chronicle of Higher Education*, 4/14/2011

Glenn, David (2011b). The Default Major: Skating Through B-School. New York Times, 4/17/2011

Strategies to Enhance Inter-Professional Education: An International Perspective

Merle Mast & Monty Gross, *Nursing, James Madison University*
Gregg Henriques, *Graduate Psychology, James Madison University*

Practice in health and human service professions in the U.S. and globally is characterized by growing knowledge, technology, techniques, and specialization. Services are delivered in complex settings with culturally diverse clients by various professionals practicing side by side. In order to safely and effectively provide services that are both high quality and cost effective, students in practice professions must learn to coordinate their work through relationships of shared goals, shared knowledge, and mutual respect. Interprofessional education (IPE) provides students opportunities to understand, value, and prepare for interprofessional practice (IPP). The presenters will share strategies used to enhance IPE in a health and human services short term study abroad program in Costa Rica. Participants will explore ways to design interprofessional teaching and learning activities that maximize the benefits and overcome the challenges of IPE.

Striving for Sustainability: A Portrait of Emerging Sustainable Agriculture Programs at Higher Education Institutions Across the United States

Lisa S. Hightower & Matthew C. Benson, *Agricultural and Extension Education, Virginia Tech*

Over the past two decades, there has been an explosion of interest in the development of sustainable agriculture programs at United States (U.S.) colleges and universities. Sustainable agriculture combines the disciplines of agricultural production and natural resource management with the goal of developing a profitable farming operation. The first sustainable agriculture program at a U.S. university was established in 1988 at the University of Maine. The most recent sustainable agriculture program was established at the University of California at Davis in the fall of 2011. According to the Association for the Advancement of Sustainability in Higher Education, at least twenty-four colleges and universities have developed a total of twenty-six academic programs in the field of sustainable agriculture across the U.S. In this study, we explore these twenty-six academic programs offering Associate, Bachelor, Master, and Doctoral degrees in the area of sustainable agriculture and agroecology. The majority of these programs are at four-year public or private colleges and universities. Fifteen of these programs are at U.S. Land-grant universities. Twelve of these programs are hosted within colleges of agriculture while three are located or associated with interdisciplinary centers. This poster will explore innovative teaching and learning strategies utilized in these programs, including experiential learning through student farms, interdisciplinary teaching teams, and community-based research projects involving student-faculty teams. It will also compare and contrast the University of Maine sustainable agriculture program with the University of California at Davis program to describe the evolution of these programs over the last twenty-three years. Recommendations on how to best establish interdisciplinary sustainable agriculture programs will also be offered. As a result of this research, individuals will have a better understanding of how sustainable agriculture programs are incorporating different teaching and learning approaches and best practices for developing these interdisciplinary programs.

Student Service Learning Experiences: Applying Leadership for Social Change

Kerry Priest, Curt Friedel, & Kelsey Brunton, *Agricultural and Extension Education, Virginia Tech*

As leadership studies programs gain popularity in higher education, leadership educators are challenged to not only teach about leadership, but to facilitate learning experiences that allow student to practice leadership (Posner, 2009). Middlebrooks and Allen (2008) emphasize the need to help students make connections between models and theories of leadership and the activity and practice of leadership. Eich (2008) found that high quality leadership programs utilized student-centered experiential learning. More specifically, engagement in service was identified as a key strategy for leadership development (2008). The Residential Leadership Community (RLC) is leadership-themed, living-learning community for first year students. The RLC grounds its' program in the Social Change Model of Leadership Development (HERI, 1996). A primary assumption of this model is that community service is a powerful vehicle for leadership (1996). All students in the RLC enroll in an academic leadership course, of which a

signature component is a need-driven, student-led service experience. Working in small groups, students identify a campus or community organization with whom they can partner for at least four hours of direct service in support of a local need. Each team prepares a project proposal that includes objectives, a timeline, and a list of resources. Upon completion of the project, students individually reflect through a written paper. Each team will prepare a poster to be presented in class, as well as in a special community poster-showcase at the end of the semester. As a result of this experience, students not only learn about local needs, but also put to practice team-based skills of decision-making, planning, and communication. As they make connections between their experience and the leadership values and behaviors studied in class, they gain new understandings that they can apply in future leadership roles. Many students continue to pursue service opportunities on campus and in the community.

References
Eich, D. (2008). A grounded theory of high-quality leadership programs: Perspectives from student leadership development programs in higher education. *Journal of Organizational Studies, 15*(2), 176-187.
Higher Education Research Institute. [HERI] (1996). *A social change model of leadership development.* Los Angeles: University of California Los Angeles, Higher Education Research Institute.
Middlebrooks, A., & Allen, S. J. (2008). Leadership education: New challenges, continuing issues. *International Leadership Journal, 1*(1), 77-85.
Posner, B. Z. (2009). From inside out: Beyond teaching about leadership. *J. of Leadership Education, 8*(1) 1-10.

Students' Attitudes Toward E-learning in Iranian Universities

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E-learning is becoming increasingly prominent in higher education, with universities increasing provision and more students signing up. This paper examines factors that predict students' attitudes to adopt e-learning at the Khuzestan province iran . Data was collected through a survey of 400 post graduate students at the University of Tehran, yazd , isfahan , khoramabad , dezful , shooshtar , chamran, from different faculties .The technology adoption model put forward by Davis is utilized in this study. Two more independent variables are added to the original model, namely, resources availability and e-learning stressors . The results show that there are four factors that can be used in modeling students' attitudes to adopt e-learning. These factors are intention toward e-learning, perceived usefulness of e-learning, e-learning stressors , and the availability of resources needed to use e-learning.

Systems Engineering and Freshman Design: Reinforcing Systems Engineering Methods & Technical Communication Through Project Based Learning

Julian L. Davis & Ronald W. Diersing, *Department of Engineering, University of Southern Indiana*

The ability to design a system, component or process to meet desired needs is just one of the outcomes engineering educators strive for their students to achieve (ABET, 2010). However, the idea of breaking any problem down into its constitutive components is a theme that occurs throughout the practice of engineering and science (NASA, 2007). Engineering educators also strive for graduates to have the ability to communicate effectively, along with other professional engineering skills (ABET, 2010; Shuman, Besterfield-Sacre, & McGoury, 2005). We developed a unique course that establishes the importance of each of these outcomes early in an engineering student's career.

We use Massachusetts Institute of Technology's Conceive-Design-Implement-Operate (CDIO) process (Crawley, 2001) as a framework for a project based freshman engineering design course. The class begins with four different, multi-disciplinary problem statements and limited materials. Then, students are divided into four groups and asked to work within their groups to identify critical systems and subsystems necessary to solve their respective problems. The course is structured such that groups spend multiple weeks in each phase of the CDIO process. Groups are required to document and present their work at "end-of-phase" design reviews that include both written technical reports and oral presentations. To provide a mechanism where students experience the importance of technical communication, projects & technical documents are rotated to new groups after each "end-of-phase" design review. A liaison is assigned for each phase as an avenue for communication between groups in order to clarify questions

that may arise from the transition process. Relying on each other's work, students quickly observe the importance of technical communication through both technical writing and drawings. Students also experience the process of identifying and deconstructing problems into smaller more manageable systems & subsystems as part of design.

References

ABET. (2010). Criteria for Accrediting Engineering Programs, 2010-2011 Review Cycle (PDF) Retrieved September 24, 2011, from http://www.abet.org/forms.shtml

Crawley, E. F. (2001). *The CDIO Syllabus: A Statement of Goals for Undergraduate Engineering Education*: Massachusetts Institute of Technology.

NASA. (2007). *NASA Systems Engineering Handbook*. Retrieved from http://education.ksc.nasa.gov/esmdspacegrant/SystemsEngineering.htm.

Shuman, L. J., Besterfield-Sacre, M., & McGoury, J. (2005). The ABET "Professional Skills"—Can they be taught? Can they be assessed? *Journal of Engineering Education 94*(1).

Tablet PCs in Undergraduate General Engineering: The Untold Story

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Jean Mohammadi-Aragh, *Engineering Education, Virginia Tech*
Kibong Song & Chris Wasko, *Instructional Design and Technology, Virginia Tech*
Jessica Stephenson, *Science Education, Virginia Tech*

The focus on effective utilization of technology in educational settings continues to grow as technology becomes evermore sophisticated and accessible. Since the introduction of the Tablet PC in 2002, numerous researchers have conducted studies to explore the role of the Tablet PC in the learning environment and have discovered a range of benefits including increased efficiency in lecture delivery, improved teacher-student interaction, and more effective information management (Lim, 2011). The majority of these studies, however, are quantitative in nature and are inadequate to capture a true and complete picture of the students' lived experience. The classic debate between Clark (1983) and Kozma (1991) launched a movement to investigate not the media itself but rather the interaction between the learner and the media. As Kozma (1991) points out, studies that analyze only the media itself fail to capture an "image of the learner actively collaborating with the medium to construct knowledge" (p. 179). In an effort to explore such collaboration between learner and medium and to gain a deeper understanding of the students' perspective on the usage of Tablet PCs in the classroom, students in a Qualitative Methods course at Virginia Tech conducted a phenomenological study of Tablet PC usage in a first semester general engineering course in the Fall 2011 semester. Methods included observation of a large-scale lecture conducted with Tablet PCs and personal interviews with students in the class. Results *(which are pending completion of the investigation)* provided researchers the ability to create a vivid picture of students' experience as they utilized this media while they participated in lecture discussions. This poster session will present the results of the study and discuss implications for future researchers.

References

Clark, R. (1983). Reconsidering research on learning from media. *Review of Educational Research*, 53 (4), 445-460.

Kozma, R. (1991). Learning with media. *Review of Educational Research*, 61(2), 179-212.

Kyu Yon Lim (2011). What does the tablet pc mean to you? A phenomenological research. *Innovations in Education and Teaching International*, 48(3), 323-333.

Teaching Advanced Content Using Formal Definitions

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Advanced courses at the graduate and upper-undergraduate levels often cover technical or highly-specialized content and concepts. Formal definitions provide a concise means of conveying precise specifications of terms, concepts, and approaches. In the field of computer science, the 5S Formal Framework and the DELOS Reference Model have previously been used to formally define topics related to digital libraries. Previous publications have defined a wide range of representative digital library concepts using the 5S Framework. An early version of a textbook, currently in

press, utilizing the existing set of formal definitions is being used in the instruction of a current graduate-level digital libraries course as well as an independent study for an undergraduate student. Each chapter includes motivation, intuition-oriented explanations, formalism, and one or more case studies. Pedagogically, formal definitions have successfully been used to guide students to a rigorous, mathematics-based understanding of concepts that is often lacking in the typical instruction. As an example, formal definitions may be used to describe the content, users, and services typical of digital libraries that support scientific and medical research communities. Student feedback and assessment analysis will be used to gauge the potential of formal definitions in improving the accessibility of complex content.

Teaching Building Structures Concepts Using an Interactive Web3D Design Tool

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Mehdi Setareh, Bingfei Guo, & Tianyu Geng, *School of Architecture + Design, Virginia Tech*
Nicholas Polys & Felipe Bacim de Araujo e Silva, *Computer Science, Virginia Tech*
Li Ma, Kurt Villella, & Bobby Orsa, *Civil and Environmental Engineering, Virginia Tech*

Architects need to have an understanding of the technical features of building design. Unfortunately, traditional methods of teaching building structures in architecture schools is ineffective because technical subjects are taught in lecture courses without any linkages to the activities in design studio courses where students apply their structural knowledge to building design. To address this problem, we used multi-media computer technology to create the Structure and Form Analysis System (SAFAS) with the support of the National Science Foundation under Grant No. DUE-0817106. SAFAS is an integrated set of two online learning modules that teach architecture and engineering students fundamental concepts related to building structures. The first module provides individuals with knowledge about structural concepts and spatial structures. The second module allows individuals to explore the relationships between structure and form using an interactive Web3D design tool. Individuals engage in an experiential approach to learning in which they can: create or import a computer model of a spatial structure, define the design parameters, modify different aspects of the structure, and observe the effects on their design. Our study included 11 graduate and undergraduate students who were enrolled in a master's-level building structures course. Study participants watched online tutorials and completed assignments that required them create specific structures with certain loads and analyze structural characteristics such as maximum forces and deflections. Participants completed an 88-item, online questionnaire that included open- and closed-ended items that measured their beliefs about the effectiveness of the SAFAS modules, their motivation to engage in the modules, and how much they learned from the modules. Overall, participants found that the SAFAS modules: were effective and easy to use, taught them new knowledge and skills, were useful in solving structural problems, and were interesting and enjoyable to complete. Implications for instruction will be provided.

Teaching Family Therapy as an Interdisciplinary Field

Elnaz Farbod, *Family Therapy and Psychology, Kerman Applied Sciences University, Kerman, Iran*

Educational methods in interdisciplinary majors are challenging and of great importance. Family therapy is an interdisciplinary field which can use tools from different disciplines such as psychology, communication and systems sciences and education. Teaching family therapy courses at both undergraduate level and graduate level needs a special framework to cover these different disciplines. In this project we have proposed a framework for teaching family therapy as an interdisciplinary field. This framework includes proposal of interdisciplinary courses to be designed and teaching methods to be used in different teaching settings. There has been no comprehensive model of teaching family therapy in an interdisciplinary approach and the aim of our proposed framework is to provide an integrative proposal for issues involved in teaching family therapy as an interdisciplinary major.

Teaching to the Extremes: Teaching Introductory Statistics to Students With Mixed Ability Levels

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Teaching a course where the ability levels and backgrounds of the students are diverse is difficult in any introductory course but is especially challenging in a first statistics course. A general education statistics course's mathematical nature commonly creates a bimodal distribution of ability level. We have recognized this challenge and have made multiple changes to make introductory statistics engaging and accessible for all students. This poster will discuss the challenges of teaching to a variety of mathematical ability levels, some of the strategies we have used to deal with them and the results we have observed. A natural way to bridge the gap between mixed ability levels in mathematics is to allow students to express their understanding of the statistical content through writing. As noted by Bradstreet, deciding to teach statistical reasoning, statistical methods or both is a crucial decision when shaping an introductory course (Bradstreet 2006). Statistical reasoning is the most important aspect of our courses and we believe having students write about statistics is paramount to developing their statistical reasoning abilities. To make the pace as appropriate for as many students as possible we teach the course using a central theme such as botany, the sports industry or predicting the weather. Using a theme allows us to engage the students that are quickly comfortable with the material in an application and forming a foundation of practical understanding for the students struggling with the technical mathematical content. We take heed in Yalmiz's idea that providing students with real world examples helps the statistical content stick, especially for the weaker students (Yalmiz 1996).
The changes we have made appear to have made immediate improvements to the course. The feedback from the students is positive and they appear to be less vocal at the extremes.

Team-Based Learning (TBL) in Teacher Preparation Programs

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Team-Based Learning (TBL) is a cooperative learning strategy designed to "take advantage of high-performance learning teams" (Fink, 2004). Team-Based Learning allows instructors with large classes to create smaller communities of learning - groups made of 3-5 students - which provide students a better opportunity to collaborate while also shifting more of the responsibility of learning to them. TBL groups are capable of problem-solving at a level that surpasses that of its individual members, allowing students an exposure to more advanced concepts and pushing them to higher-order levels of thinking. This presentation will introduce TBL as an instructional strategy, discuss its application to the field of teacher preparation, and provide some examples of how the presenter uses it in his courses.

The Effects of Role Play on Team Training in Cardiopulmonary Resuscitation (CPR)

Ravi Rathnam & Mary Anne Ramirez, *Biomedical Science and Pathobiology, Stratford University*

The new 2010 American Heart Association guidelines for CPR recommend a greater emphasis be placed on teamwork skills for health care providers when performing life-saving resuscitation. Teamwork and leadership skills collaboratively help to minimize interruptions when performing CPR; consequently, improving the chance of patient's survival. The value of incorporating role play into the present CPR curriculum was examined to determine if this would enhance the interdisciplinary team approach and minimize interruptions. Our study design sampled 16 CPR teams. Half these teams used the current didactic CPR guidelines and the other half used the same guidelines along with role play. These teams were each evaluated with a competency-based skills checklist prior to and after the training. The techniques were videotaped and compared on teamwork performance. The results showed that both groups improved in overall CPR training. However, the group using role play showed a greater team performance. The research suggests that incorporating role play into the present curriculum will enhance team dynamics and minimize interruptions to increase the patient's chance of survival.

The Impact of Teaching Gender Issues on College Students' Awareness, Knowledge, and Sensitivity to the Topic

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In an effort to evaluate the effectiveness of a course module being taught to students enrolled in a large (approximately 850) general psychology course, students were administered a pretest to assess their awareness of, knowledge about, and sensitivity to gender issues. After the module was taught, students were given the same survey as a posttest. The analysis revealed that there were significant (all $p < 0.05$) differences in student awareness and knowledge of gender issues as a function of this course module. On the other hand, sensitivity to these issues appeared to be less susceptible to our teaching procedures. This was somewhat expected as research indicates that it can be difficult to change student attitudes (Boatright-Horowitz, 2005). In its current format, the course module for this class involves discussions of chromosomal and hormonal anomalies that give rise to physical and psychological sexual variations. It also includes information about gender as a social construct. As a result of these data, we plan to incorporate information about intersexualism into this course module, specifically the work of Faustos-Sterling (1993), regarding the possibility that there are five sexes. Our expectation is that this additional information would be eye opening for our students and possibly impact their sensitivity to the plight of people whose sexuality deviate from the norm. Our work also illustrates the importance of using scientific methods for assessing the effectiveness of classroom discussions and activities, as well as using the results to guide future classroom curriculum.

References

Boatright-Horowitz, S. (2005). Teaching antiracism in a large introductory psychology class: A course module and its evaluation. *Journal of Black Studies*, 36 (1), 34-51.
Fausto-Sterling, A. (1993). The five sexes: Why male and female are not enough. *The Sciences*, 33 (2), 20-24.

The Pedagogical Act as a Vector of Professional Values Transmission

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During university professional training, it is expected that students develop their professional identity based on a solid knowledge base, strong values and socio-professional practical experience (Frankland, 2010). In health related professions, the development of professional identity during training often reveals a dichotomous and confrontational process because of the wide gap between theories taught and the clinical reality (Cherel, 2009; Clandinin et Cave, 2008; Clouston et Whitcombe, 2008). Therefore, in some training programs, instructors are required to use pedagogical approaches, in addition to specific disciplinary content, that are fully representative of the values and contexts associated with professional practice. This survey intented to examine how professional values incorporated into the pedagogical approaches impact the development of trainees' professional identity. Five instructors from a graduate rehabilitation program of the University of Ottawa (Canada) and their students have voluntarily participated to a questionnaire survey about their perceptions of the implementation of professional values in their courses, and of the constituent elements of their professional identity. A first correlation ($r_s = .74$, $p < .001$) was noticed between professional values transposition into pedagogical approaches and professional identity. A second correlation ($r_s = .61$, $p < .001$) was obtained between the latter variable and respect for professional values in the pedagogical act. These positive correlations raise the importance of affirming, during university training, the values that are to be met in practice, and to fully assume them when comes the time to choose a pedagogical approach that will foster professional learning.

The RAP: An Academic Service-Learning Approach to Teacher Training

Kathlyn Parker, *Teaching and Learning, Eastern Michigan University*

This study is based on the philisopy and teaching technique of academic service-learning (ASL). It describes an on-going class assignment, in which students have been actively involved their introductory course in cognitive impairment. The author and her community partner collaboorated to create the RAP(recreational activities project), in which university students spend 20 hours over the semester, engaged in social activities with transition level students with developmental disabilities. One of the biggest problem for individuals with disabilities and their families has been that of social isolation (Parker, 2009). With this in mind, the RAP was born. University students enrolled in each semester of the introductory course, approximately 40, were given the RAP assignment. Due to its popularity, the RAP has become a driving teaching method for the university course in which it is used. According to ASL methodology, students are expected to participate in some aspect of community living, as well as classroom learning. The RAP is analyzed according to qualitative research methods. Both ASL and qualitative methodology are well suited to the RAP and each other, so it was natuaral to put them together. The RAP is an example of participatory research; the participants were actually the student researchers who developed the parameters of the program. Validation methods(credibility, transferability, dependability, and trustworthiness) are shown and discussed. Methods used were establishing focus groups and the writing of reflective journals in class, based upon student experiences. Both pre and post journal questionaires were used. Feedback from the students was put into five possible categories; (a)Friendship,(b) Hesitancy, (c) Discovery, (d) Frustration, and (e) Course Assignment. Each one of these categories is discussed. Readers are encouraged to begin RAPs in their own communitties, and given instructions on how to do so. Implications for society, people with disabilities and their families, and future teachers are many.

The Relationship Between Self-Esteem and Paragraph Writing of Iranian EFL Learners

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The present study is an attempt to understand the relationship between self-esteem and paragraph writing of Iranian EFL learners. The study was conducted on both Iranian male and female senior EFL learners studying at Tonekabon and Lahijan Azad Universities. To start the project, first of all, the researcher ran the TOEFL test among 80 students. Then, the Self-esteem Coopersmith inventory was given to the same subjects, after that the researcher asked them to write three different kinds of paragraphs in three forms namely; descriptive, comparison/contrast and cause /effect. However, the last two stages were administered in one session by one week interval. Needless to say, the researcher was available in the class in order to eliminate probable misunderstanding while the subjects were completing all three above-mentioned stages. Finally, in order to come up with the result, the correlation related to the four questions was measured by Pearson-product moment formula, thus, the results of the calculation of correlation coefficient showed a correlation between variables of each question. Based on the above-mentioned results the null hypotheses of this study were all rejected. Meanwhile, the consistency of the raters was calculated by α-Chronbach index showing a high reliability among all raters.

The Scholarship of Study Abroad Programs: Engaging Students Through International Experiences

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Universities and students in the U.S increasingly realize the pedagogical benefits of studying abroad. Study abroad programs offer a unique opportunity for students to engage in experiential learning, and that by incorporating study abroad with laboratory experiences, students gain a complete experiential learning opportunity (Archangeli, 2008; Hopkins, 1999). Study abroad programs can be critical to agricultural students where understanding the subject in a global context is as important as understanding its lab based intricacies. This study examined 783 study abroad

programs with an Agricultural and Life Sciences focus from 84 higher education institutions for the academic year 2009\10. This research, conducted as a part of the USDA's FAEIS (http://faeis.usda.gov/), investigated the following questions: Which countries do agriculturally-driven study abroad programs visit? Which higher education institutions are the major sponsors for study abroad programs in Agriculture and Life Sciences? Which area receives funding more often among the four major disciplines in Agriculture and Life Sciences--A*griculture*; *Family and Consumer Sciences and Human Sciences*; *Forestry and Natural Resources*; and *Veterinary Medicine*? Data were collected through an online survey. Descriptive statistical tools were used for the data analyses. Results indicated that study abroad programs in Agriculture and Life Sciences visited 155 different countries. The countries visited most often were China (n=24), Malawi (n=22), and Mali (n=20). Michigan State University (n=329) had the highest number of study abroad programs, followed by Texas A&M University (n=43) and Iowa State University (n=40). Among the four disciplinary areas, undergraduate students who have a study abroad experience tended to major in agriculture, while graduate students tended to major in veterinary medicine. A total of 1660 agriculture undergraduate and 127 veterinary graduate students were involved in the study abroad program for the academic year 2009/10.

References

Archangeli, M. (2008). Study abroad and experiential learning in Salzburg, Austria. *Foreign Language Annuals, 32*(10), 115-122.

Hopkins, J. (1999). Studying Abroad As a Form of Experiential Education. *Liberal Education*, *85*(3).

The Tablet PC: An Interactive Teaching Tool for Spanish Language and Literature

Dolores Flores-Silva & José F. Bañuelos-Montes, *Department of Modern Languages, Roanoke College*

The Tablet PC is a traditional notebook computer that can be a potential teaching tool for educational purposes. This presentation will demonstrate to educators the effectiveness of integrating the Tablet PC into their Spanish language and literature lessons. The Tablet PC will be used as a digital whiteboard by connecting it to a projector to show educators how to archived written information to be accessed either electronically by students or information that can later be revisited by an educator to highlight an important point for future discussion.

The Tablet PC is a pen-based computer that helps educators capture written notes that would normally be lost if written on a traditional blackboard. It also offers the educator the opportunity to manage PP presentations with more precision. The multiple color pens function gives the educator the choice of highlighting essential points in regards to the information transmitted to the students. This information can be saved and viewed at a later time to stress or enhance a particular idea or to continue with a previous discussion.

The use of the Table PC as a teaching tool gains student attention, recall prior material, provides a learning guidance for taking notes and PP presentations, reinforces material to enhance understanding and retention of the material.

The Tilt of the Table: How Classroom Organization Affects Student Organization and Achievement of Learning

Bonita S. Phelps, *Foreign Languages and Literatures, Western Kentucky University*

Classroom organization certainly affects the achievement of learning objectives in the classroom at any level of education. This presentation will examine how the delivery of the lesson and the set- up or arrangement of the learning environment may affect the acquisition of the lesson. Does the instructor stand at the lectern and exclusively deliver the lesson? Are students invited to prepare and present lessons that show that they are acquiring the material and which are absorbed by fellow students as the lesson is evaluated by the instructor? Do students have the opportunity to work together in the classroom and share the process of learning as they work with their peers, with the instructor as a monitor and guide? Does even the shape of the tables or desks in the classroom make a difference? This presentation will consider these questions and will also involve the participation of the session attendees in conversation and deliberation.

The Value of Applied Learning Through the Use of Videos and Story Telling Experiential Learning That
Occurs Through Mock Consulting Role Assignments With Doctoral and Graduate Students

Darrell Norman Burrell, *Global and Community Health, George Mason University*

The invention and active use of PowerPoint in university classroom has transitioned academic teaching from transparencies and overhead projectors into new ages of teaching and learning. The next challenge for professionals has been the appropriate and effective use of PowerPoint and lectures as it relates to working adults when there exist differing schools of thought if lecturing through 50 to 100 PowerPoint slides is the effective way to engage graduate students. Progressive professors are using new tools that offer stories that provide context, relevance, and handles for knowledge retention for graduate students through the use of case studies, simulations, and videos including Donald Trump's the Apprentice. This paper provides contextual examples about how to use real world stories as a means of to engage graduate students, connect with them, and provide opportunities for the practical application of course content.

The Way Forward: Incorporating Multicultural Education Into Elementary Education Programs

Dyanis Popova, *Teaching and Learning, Virginia Tech*

The increasing student diversity in American classrooms is not often reflected in its teachers and administrators, who can bring distorted perceptions and opinions into the classroom, potentially affecting their pedagogical efficacy. Teachers' beliefs and positional identities shape their perspectives of both their students and their teaching, and many may have to be explicitly taught to recognize the ways in which these influence instructional practices. Many teacher preparation programs mirror a lack of concurrence in multicultural educational theory, as programs offer varying levels of exposure to multicultural education, focusing primarily on institutional compliance with inadequate state and national standards or on multiethnic education, which primarily addresses race and ethnicity. The depth to which this content is integrated into a teacher education program can implicitly and explicitly shape a pre-service teacher's perspective of multicultural education, and its potential to inform their practice. This study turns attention to multicultural education within a higher education setting as teachers are being prepared to work in diverse classrooms. Supported by the literature available on the use and implementation of multicultural education in elementary education teacher education programs, this case study looks at a rural university in southwestern Virginia, and their efforts and successes in addressing these goals. Using the lens of critical pedagogy, the researcher investigates applicable syllabi, course work, and activities used to encourage this discourse in preparation for working with students from different backgrounds and cultures, and asks the question: Is this enough?

Theoretical Perspectives of Transferable Skills in Higher Education

Yussuf Ahmed, *Engineering Education, Randstad/Caterpillar (UK) Ltd, United Kingdom*

This paper presents the theoretical perspectives of transferable skills in higher education. A model of skilled performance similar to the Control System Engineering model (A closed-loop control system) which uses a measurement of the output and feedback of the signal to compare with its desired output was designed to demonstrate how the skills are learnt through practice, supported by knowledge of results, reinforcement and reflection on the task. Transferable skills in higher education institutions are embedded directly and indirectly in the curriculum, however is not clearly what criteria are used to select the set of skills and what level of these skills to be embedded in the curriculum in order to suit all students especially on their first year of undergraduate degree and what are the effective methods of assessment for assessing the skills outcome. Some of the problems of assessing transferable skills will also be discussed in this paper and through close negotiation, agreement and close cooperation within module teams, students and for the DIS (Diploma in Industrial Studies) degree programmes between line managers in industries, tutors and students it is hoped that these difficulties can be overcome.

Training the Trainer Through Active Engagement

Christopher Brown, *Culinary Arts, Stratford University*

Students learn best when their existing beliefs and ideas are challenged and so do those that train them. In the research that was conducted by Mr. Brown, he discovered that students and instructors knowledge pertaining to Genetically Modified Foods (GMO) varied greatly. His research initially focused on public acceptance of GMOs in the consumer market place. Once the research was concluded, he decided to develop a method to train instructors to deliver the correct information in a Nutrition course at his University and this is method and mode of co-constructing knowledge that developed.

The literature reviewed for this presentation includes works by Piaget, Whorf and Sapin and their theory of the influence of language on learning and decision making.

The delivery of the materials is in three parts. It begins with the initial assessment of existing knowledge by having the student create a tangible model of their knowledge, then builds from that central point and expands the participants understanding of the topic until they are able to use the information and delivery method to teach to a live class. The participants create a content maps that show their current level of understanding and knowledge. The cornerstone of the learning process in this method is active engagement and maintaining it through out the presentation with positive interaction from the instructor and the participants. The retention of knowledge and understanding is measured in the final method by having the participants create a new Content Map based upon their previously model and reevaluate the information that they received.

Two Dollar Challenge: Beginning to Learn How the Other Half Lives

Shawn Humphrey, *Economics, University of Mary Washington*

Nearly half the world's population lives on less than two dollars a day. The poor are socially excluded, politically powerless, and vulnerable to crime, corruption, and coercion. They have limited access to education, technology, and markets. Overall they are marginalized, with few if any, economic opportunities to improve their standard of living. It is one thing to learn about the multiple dimensions of poverty by carefully following abstract lines of reasoning in a classroom. It is something entirely different to begin learning how the other half lives with the assistance of personal experience. The Two Dollar Challenge is an experiential learning exercise in which students live on two dollars a day and adhere to other rules that limit their access to water, clothing, and other preexisting sources of wealth. All rules are structured to offer students a momentary and admittedly incomplete glimpse into a poor individual's daily struggle to meet their basic needs. The Challenge also gives participants an opportunity to be part of the solution. Each year we choose a poverty-related cause (for example, microfinance) and a non-governmental organization whose development program addresses our chosen cause as a partner. Participants seek out sponsors who donate funds to our partner for each day they live on $2. Some have argued that graduates of our higher education system cannot consider themselves educated if they do not have an understanding of how the other half of the world's population lives. The Two Dollar Challenge attempts to do just that. It has numerous imperfections. However, given the set of tools with which to accomplish that objective - lectures, movies, readings, quotes from the poor – it is the least imperfect. Survey results suggest that it does raise awareness of global poverty, engender empathy, inspire critical reflection, and provide participants with an opportunity to act.

Undeclared First-Year Students and Their Advisors: A Study of Institutional Engagement

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Ásta B. Schram, *Curriculum and Instruction, Virginia Tech*

As freshman students learn to navigate collegiate life, they may turn to various mentors for guidance and support. Specifically, one institutional mentor available to all students is their academic advisor. Academic advisors guide

students through their collegiate years, but what impact do they have on students? The purpose of this study is to investigate how academic advisors aim to influence the institutional engagement of first-year students who have not selected a major. Semi-structured interviews will be used to examine this relationship, and the result will be a discussion of themes and patterns. At this stage in the research, institutional engagement will be defined by the academic advisors. Through our work, we will answer the following research question: How do academic advisors at Virginia Tech describe their influence on the institutional engagement of first-year students who have not selected a major? To date, little work has been done on the relationship of academic advisors and students who have not yet selected a major with regard to institutional engagement, but various studies have examined the student-advisor relationship in general and student engagement. This work will fill the gap in the literature by connecting these two areas of study. Our hope is that this research will help enhance the experiences of both first-year college students and their academic advisors.

Understanding Teaching Methods - Lecture and Facilitation in Higher Education: A Summary of the Published Evidence

Krishna Regmi, *School of Health, Sport and Bioscience, University of East London, Stratford, United Kingdom*

Several studies have documented that teaching methods in higher education are the most important aspect of a curriculum. This is because they serve as an interface between the learners and philosophy of the curriculum. It is, however, difficult to define how knowledge is conceptualised and in what way it influences the choice of effective teaching methods in higher education. A literature search using the major databases – Medline, PubMed, EMBASE, CINAHL, JSTOR, PsycINF, and Web of Science – was carried out. This research aimed to focus on the two important dimensions: lecturing and facilitation, within the same learning and education process, rather than challenging and demanding it, concerning their roles in teaching and learning. This particular paper shows that in many areas of teaching and learning, the positivist notions of knowledge are not always sufficient or appropriate. The latter has been conceptualised as a 'banking' model of learning, where the teacher is an expert and a storehouse of knowledge and this is transmitted (deposited) to the student over time who 'banks' this knowledge. The same considerations apply to teaching and learning, with respect to many areas of 'academic' courses, which require the students to explore values. This is where facilitation can be considered as an important approach to learning. The context for much of this might be conveyed through a lecture, but to enable the students to develop a deeper understanding and to reflect on their own values, dialogical approaches to learning are needed. It will ensure that the issues are discussed and explored through interaction and sharing of perspectives, views, and values through which new understandings (learning) can emerge. This paper concludes that adoption of effective teaching methods, employing both, dimensions of 'learner-led' or 'learner-centered' approaches as well as the inclusion of adult learning principles, have important implications for experience of higher education.

Use of Multiple Mini Interviews for Evaluation of Behavioral Competencies in Candidates for Admission Into a Veterinary Professional Program

Jacque Pelzer, *Small Animal Clinical Sciences,*
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Interviews are frequently used by admissions processes within professional programs to provide additional information regarding a candidate. Historically interviews at the College of Veterinary Medicine (CVM) have been subjective and non-uniform. In contrast, many medical schools in North America use Multiple Mini Interviews (MMIs) to assess candidates in an objective, reliable and valid manner. MMIs are a series of structured, timed scenarios which assess a range of behavioral competencies determined by individual programs. Due to the recent focus on behavioral competencies within veterinary education, the CVM conducted MMIs in 2009 and 2010. Candidates seeking admission to the CVM were first ranked based on quantitative academic criteria. Once ranked, academically acceptable students were invited to participate in the MMIs where two hundred and seventy candidates were interviewed in two days. The candidates were evaluated using eight different scenarios focusing on the following skills: communication, team building, problem-solving, moral and ethical reasoning, and critical thinking. Multiple interviewers (n=32) were used in the MMIs. Interviewers were selected based on their background and

commitment to participate for the duration of the interviews. The interviewers consisted of faculty, veterinarians from the public/private sector, staff, and members of the university community. Mandatory facilitator training session was provided prior to participation. The MMIs conducted in 2009 and 2010 were completed successfully and feedback from interviewers and candidates was overwhelmingly positive. Studies are being conducted to determine whether MMIs are successful at predicting academic performance in both traditional veterinary courses as well as newer courses focusing on behavioral competencies.

Use of Objective Structured Clinical Exams to Evaluate Behavioral Competencies in the Para-Clinical Years of a Veterinary Professional Program

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Kevin Pelzer & David Hodgson, *Large Animal Clinical Sciences*,
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Recent conversations regarding veterinary medical education have focused on enhancing behavioral skills within veterinary curricula. The College of Veterinary Medicine (CVM) responded to these discussions by implementing a series of Professional Foundation courses within para-clinical years. These courses focus on communication, professionalism, reflection, diversity, team building, and other topics relevant to the profession. Previously, these skills were either not present or not evaluated within the CVM curriculum. Although these behaviors may be tested using traditional assessment tasks, direct demonstration of a student's application of knowledge and technical skills is preferable. Currently Objective Structured Clinical Exams are used in veterinary curricula within the UK, Australasia and Canada to directly assess behavioral skills. These are a series of stations where a student's performance is assessed when undertaking a specific hands-on task or interpersonal interaction. Four OSCE stations were designed and implemented where three assessed communication skills and the fourth evaluated a technical skill. Students had two minutes to read the scenario and six minutes to participate. The communication skill scenarios included a rater and a simulated client. Faculty responsible for teaching communication skills served as raters. Evaluation rubrics were used by raters who also provided oral and written feedback upon completion of the scenario. In response to the implementation of OSCEs, students valued the immediate feedback provided after the completion of the exam. Furthermore, this assessment task allowed objective evaluation of student's communication skills. Comments from students and raters will be used to improve both the courses and assessment tasks in the future.

Using Additive Manufacturing Technologies as an Instructional Tool for the Blind and Visually Impaired

Jacob Moore & Christopher Williams, *Engineering Education, Virginia Tech*
Austin Amaya, *Mathematics, Virginia Tech*
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In STEM disciplines, the ability to form mental representations of complex three-dimensional geometries is an important skill. Instructors in STEM courses often rely on two-dimensional visual representations or computer modeling programs to aid students in developing mental representations of these complex three-dimensional geometries. Many students have difficultly forming these mental representations, but students who are either blind or otherwise visually impaired are put at a significant disadvantage in these situations. A physical manifestation of the three-dimensional geometries would allow for a tactile, rather than a visual, input that could help many students better form these mental representations of three-dimensional geometries. These tactile models would be particularly helpful for those without sight. Many of these geometries are difficult to produce using traditional manufacturing technologies, though. There is a niche need for physical artifacts that can be used to aid STEM instruction for blind or visually impaired students, but the market is not large enough to support the production of such artifacts. Additive manufacturing technologies, also called three-dimensional printing, can help fill this need in education. Additive manufacturing technologies excel at creating complex geometries at low cost for small production runs, making the technologies ideal for the situation. In addition, additive manufacturing machines are becoming more common at colleges and universities with STEM programs. This research project documents the process of identifying artifacts

to aid the instruction of a blind student taking two advanced mathematics courses, the process of transforming computer models into physical artifacts using additive manufacturing technologies, and the process of evaluating these artifacts as instructional tools for the student. The process and potential problems outlined in this poster can help other STEM educators collaborate with engineers at their college or university to help create physical instructional artifacts to aid blind or visually impaired students in their courses.

Validating a Measure of Academic Self-Regulation

Parastou Mokri & Thomas M. Sherman, *Learning Sciences and Technologies, Virginia Tech*

Academic self-regulation refers to the ways that learners engage in processes to achieve their chosen outcomes by managing their motivational, cognitive and volitional resources to manipulate learning related variables. Learners who engage in academic self-regulation activities define their goals, strategically plan their learning activities, monitor and control their learning outcomes and refine their behavior based on the discrepancies between their achieved outcomes and their desired outcomes. Learners who can regulate their learning have access to a repertoire of techniques and are able to adapt their behavior according to their needs to learn a task in specific contexts. Different learners regulate their cognitions, actions, and emotions in varying degrees according to the context, the learning environment, and their efficacy beliefs.

An instrument based on a comprehensive model of academic self-regulation focused on influencing learners to engage their cognitive and intellectual resources to achieve academic success was developed. The evidence based model provided a practical and realistic account of the constructs and actions leading to academic self-regulation. Exploratory investigation based on data from graduate and undergraduate students indicated that the instrument demonstrated strong internal consistency and strong item-total correlation consistent with the model. In addition, taking into account that students' self-regulatory skills can and will develop throughout their academic lives, the proposed model and instrument, are useful to investigate the relationship between the utilization of self-regulatory skills and academic achievement. Educators can assess students' learning using the model and the proposed instrument.

Virginia Initiative for Science Teaching and Achievement: Increasing Student Performance and Improving Teaching

Christopher Wasko, *Instructional Design and Technology, Virginia Tech*

VISTA is a partnership among 47 school districts, six universities, and the Virginia Department of Education to build an infrastructure to provide sustained, intensive science teacher professional development to increase student performance. VISTA aims to improve science teaching and student learning throughout Virginia especially in high-poverty, high-minority schools. VISTA provides upper elementary (grades 4-6) teachers experiences with scientific problem-based learning and student-centered inquiry as they work in teams to conduct inquiry-based science for children. Additionally, the program aims to provide uncertified, provisionally licensed, and first year licensed secondary (grades 6-12) science teachers just-in-time coaching and "big picture" research based teaching coursework for two years. Virginia Tech currently acts as Rural Coordinator for VISTA. In fulfillment of this role, Virginia Tech provides technological training and support for rural schools and helps identify and recruit participants.

Virginia Tech's PhysTEC: Inspiring Students to Pursue Physics Teaching

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George Glasson & Brenda Brand, *School of Education, Virginia Tech*
Leo Piilonen & John Simonetti, *Physics, Virginia Tech*
Catherine Amelink, *Information Technology, Virginia Tech*

As the 2005 "Rising Above the Gathering Storm" report and its 2010 sequel "Rapidly Approaching Category 5" have shown, it is imperative that the United States takes action to improve K-12 science education to stay competitive in our global economy. Unfortunately, although the number of high school students taking physics has substantially increased, the number of qualified physics teachers remains in short supply. To heed this call to action, the Department of Physics and the School of Education at Virginia Tech are partnering with the national PhysTEC (Physics Teacher Education Coalition) organization to recruit, train, and support outstanding physics teachers. Our vision is to establish a vibrant hub for physics teacher education in the Commonwealth of Virginia with significant impact on the neighboring states and the nation. The project will focus on pre-service education involving targeted and intense freshmen recruiting, changes to pedagogy in the physics undergraduate curriculum, early field experiences for future teachers, courses in physics pedagogy taught by an experienced physics teacher in residence at Virginia Tech, and the development of a network of program alumni with a robust outreach component. While this program is in its infancy at Virginia Tech, the research shows that other PhysTEC institutions have demonstrated considerable strides towards these goals including significant increases in the number of graduating physics teachers, higher retention rates for PhysTEC graduates who enter into teaching, and higher learning gains in introductory physics for PhysTEC classes utilizing interactive-engagement teaching methods. Through the Virginia Tech PhysTEC program, we hope to increase the number of MAED graduates with undergraduate physics degrees, build a model program for learner-centered introductory physics, provide future teachers with early teaching experiences that are tightly connected to the findings of physics education research, and establish a professional development and mentoring network for project alumni.

References

National Academy of Sciences, National Academy of Engineering, and Institute of Medicine (2007). *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, Washington, DC: National Academies Press.

National Academy of Sciences, National Academy of Engineering, and Institute of Medicine (2010). *Rising Above the Gathering Storm Revisited: Rapidly Approaching Category 5*, Washington, DC: National Academies Press.

PhysTEC (2011). *PhysTEC: Outcomes*. Retrieved September 27, 2011 from http://www.phystec.org/outcomes

When Cohorts Collide: Teaching in a Newly Merged Cohort

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This proposal describes the results of a constructivist qualitative research study focused on students' perceptions of the learning experience and student-to-student communication between two graduate-level cohorts of students. We capture the phenomenon of students taking a merged course – that is, two previously closed cohorts taking a course together for the first time. The affect of this type of change in course structure (necessitated by fiscal concerns which are not uncommon in the changing educational landscape) is not discussed in the literature on cohort-based education. Student perceptions of the change in course structure and how it shapes their classroom environment and communication patterns give significance to the impact on student learning and outcomes.

When Do Students Self-Check Their Work, and How Does That Affect Their Performance?

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In computer science, students are encouraged to self-check their work early and often. As students learn to write programs, self-checking is especially important. Past research shows that when students frame their self-checks as executable software tests, they significantly improve the quality of their work. This is because performing a software test requires the student to write down an *hypothesis* about how their program works, and then *test* this hypothesis by running the program. Repeating this process encourages students to move toward "reflection in action," Schön's characterization of how practitioners complete tasks in the face of uncertainty and novelty. When a technique or part of a solution fails to work, difficulties or confusion cause the practitioner to switch to a reflective mode. From this reflection, the practitioner then "carries out an experiment which serves to generate both a new understanding of the phenomenon and a change in the situation." This on-going experimentation is central to finding a viable solution, and is also central to the concept of software testing.

When students self-check their work is also important, however. Educators encourage students to self-check their work frequently and as early as possible, which increases confidence in the correctness of work completed so far and also helps prevent future problems caused by building on previous errors. However, some students resist such advice and wait until their program is complete before testing it. This poster presents an analysis of work from 1,101 students collected over a 10-semester period. By performing a within-subjects comparison, we show that students achieve better outcomes when they perform software testing earlier, rather than waiting until after their program is complete. We also show the relative proportion of students who self-check early vs. late, and how these behaviors relate to assignment scores and to completing work on time.

References

Edwards, S. H. (2004). Using software testing to move students from trial-and-error to reflection-in-action. In *Proceedings of the 35th SIGCSE Technical Symposium on Computer Science Education* (pp. 26-30). New York: ACM.

Edwards, S.H., Snyder, J., Allevato, A., Pérez-Quiñones, M.A., Kim, D., & Tretola, B. (2009). Comparing effective and ineffective behaviors of student programmers. In *Proceedings of the Fifth International Computing Education Research Workshop* (pp. 3–14), New York: ACM.

Schön, D. (1983). *The Reflecting Practitioner: How Professionals Think in Action*. London: Temple Smith.

You Say, "No Way." I Say, "Yes, And…"
Concepts and Strategies for Trans-Disciplinary Instruction

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In trans-disciplinary work, people in different academic disciplines work together to solve real-world problems. A trans-disciplinary course was developed for students in instructional design, industrial design, curriculum and instruction, and computer science to collaborate to develop products of the arts that could be used to teach science in K12 public schools. We address the difficulty of getting individuals from disciplines with very different epistemologies and work habits to communicate and work together effectively and efficiently and with the right attitude. In this practice session, we will present you with strategies for teaching students of diverse backgrounds. These strategies have been used in professional development sessions for public school teachers and a course designed specifically to encourage trans-disciplinary collaboration for undergraduate and graduate students. We will present feedback from participants and students as well as a look the development of collaboration strategies. The session will also include a glance at some of the products resulting from the course development work and input from the students on the design process.

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