

**2018**



CONFERENCE ON HIGHER EDUCATION PEDAGOGY

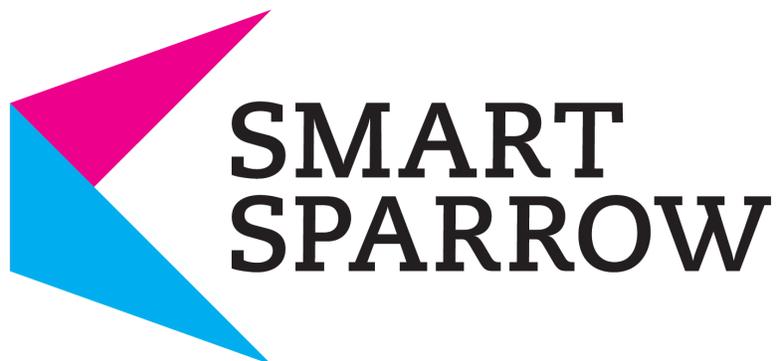
**PROCEEDINGS**

10<sup>th</sup> Annual  
**Conference on  
Higher Education Pedagogy**



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Virginia Tech, Blacksburg, Virginia

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# CONVERSATION SESSIONS

## **A Conversation on Examining High Impact Practices Like Reacting to the Past and Its Impacts on Students and Faculty**

Thomas Chase Hagood, University of Georgia; C. Edward Watson, Association of American Colleges and Universities; Naomi J. Norman, University of Georgia; Dawn McCormack

Reacting to the Past (RTTP) is a student-centered pedagogy that provides college students and faculty unique learning and teaching opportunities. At its core, RTTP is a game-based pedagogy examining some of the most conflicted moments in human history: from the fight to restore democracy in ancient Greece to the trial of Galileo to the struggles of the American and French revolutions; concerns on the nature of art in Paris circa 1890; the rise of a democratic South Africa; and, the science of global climate change. Most of the games are currently with W. W. Norton press; others are published by the Reacting Consortium Press, an imprint of the University of North Carolina Press. Set in a liminal space of authentic historical struggle, students are given roles, read primary texts, conduct research, craft arguments, and engage their peers and the instructor in considering the big issues of that conflicted moment through argumentation, plots and counterplots as students (alone or within factions) strive to win the game. The excitement and growing national interest in RTTP is at least partially facilitated by anecdotal narratives of successful faculty practice shared via conferences and communities; however, the RTTP concept is built upon an exemplary theoretical and scholarly foundation, and RTTP's efficacy in practice is being examined and confirmed through emerging empirical inquiry. *Playing to Learn with Reacting to the Past: Research on High Impact, Active Learning Practices* (Palgrave Macmillan, 2018) represents a significant advance in RTTP research. Moderated by the book's editors, this conversation of authors and RTTP faculty will explore findings from their studies examining a pedagogy of deep engagement designed to maximize student learning and leverage what we know, broadly, about how people learn.

Pioneered by historian and Barnard College at Columbia University professor, Mark C. Carnes, *Reacting to the Past* (RTTP) has currently been adopted by faculty at over 350 colleges and universities (see <http://reacting.barnard.edu>). Set in a liminal space of authentic historical struggle, students are given roles, read primary texts, conduct research, craft arguments, and engage their peers and the instructor in considering the big issues of that conflicted moment through argumentation, plots and counterplots as students (alone or within factions) strive to win the game (Carnes, 2004). Much of RTTP's high impact elements could be defined as active learning. Active learning, as a general collection of pedagogical approaches; as its name suggests, there are alternative strategies that might be termed passive or traditional learning (Bowen & Watson, 2017). Kuh, Kinzie, Schuh, and Whitt (2005) examined the full range of instructional practices used across higher education and reviewed the empirical evidence for each in search of those strategies that have a disproportionately positive impact on student learning and other student success metrics. Over the last two decades, a great deal has been written about notions of gaming (often video games, see Gee, 2007) for the purposes of learning; however, a specific type of gaming, role-playing or role-immersion, has been found to be highly effective in more traditional course settings (Van Ments, 1999). Numerous studies have provided relevant insights into RTTP. The forthcoming book builds on this foundation as well as the theoretical pedigree described above. The text offers a collective set of studies designed to further explore if, through what nuanced applications and in what specific contexts, RTTP serves as a high impact practice for student learning and engagement.

The overarching objective of the session is to share findings on practices and evidence from multiple disciplines and institution types regarding the efficacy of RTTP in higher education classroom settings as well as guidance on future SoTL projects and awareness to the growing evidence-base on which to build RTTP practices.

This conversation engages select authors of *Playing to Learn with Reacting to the Past: Research on High Impact, Active Learning Practices* (Palgrave Macmillan, 2018) as they discuss findings on classroom practice surrounding *Reacting to the Past* (RTTP)?a student-centered pedagogy that provides college students and faculty unique, high-impact teaching and learning opportunities. As with the publication, the overarching objective of the session is to share findings on practices and evidence from multiple disciplines and institution types regarding the efficacy of RTTP in higher education classroom settings as well as guidance on future SoTL projects and awareness to the growing evidence-base on which to build RTTP practices.

The book's editors will facilitate this conversation session on key research findings from their forthcoming anthology. Highly interactive questions and answers with the audience will be hallmarks of the session.

- Bowen, J. A., & Watson, C. E. (2017). *Teaching naked techniques: A practical guide to designing better classes*. Hoboken, NJ: Jossey-Bass.
- Burney, J., Powers, R. G., & Carnes, M. (2010). *Reacting to the Past: A new approach to student engagement and to enhancing general education*. New York, NY: Teagle Foundation.
- Carnes, M. C. (2014). *Minds on fire: How role-immersion games transform college*. Cambridge, MA: Harvard University Press.
- Gee, J. P. (2007). *What video games have to teach us about learning and literacy* (2nd ed.). New York: Palgrave Macmillan.
- Kuh, G. (2008). *High-impact educational practices: What they are, who has access to them, and why they matter*. Washington, DC: Association of American Colleges and Universities.
- Light, R. J. (2001). *Making the most of college: Students speak their minds*. Cambridge, MA: Harvard University Press.
- Stroessner, S. J., Beckerman, L. S., & Whittaker, A. (2009). All the world's stage? Consequences of a role-playing pedagogy on psychological factors and writing and rhetorical skill in college undergraduates. *Journal of Educational Psychology*, 101(3), 605-620.
- Van Ments, M. (1999). *The effective use of role-play: Practical techniques for improving learning*. London, UK: Kogan Page Publishers.
- Watson, C. E., Kuh, G. D., Rhodes, T., Light, T. P., & Chen, H. L. (2016). Editorial: ePortfolios – The eleventh high impact practice. *International Journal of ePortfolio*, 6(2), 65-69.
- Watson, C.E. and Hagood, T.C. (2018) *Playing to Learn with Reacting to the Past: Research on High Impact, Active Learning Practices* (Forthcoming with Palgrave Macmillan).

## **A Conversation: From Brick and Mortar to Cyber Space: Addressing Fears and Resistance**

Frida Rundell, International Institute for Restoratvie Practices; Elizabeth Smull, International Institute for Restoratvie Practices; Mary Jo Hebling, International Institute for Restoratvie Practices

This conversation provides information on current brain studies that contribute to an understanding of how fear of online learning needs to be unlearned. Using community of inquiry's (CoI) theory (Garrison & Anderson, 2003) where constructing meaning in different "presence domains" makes a difference in dispelling fears of online teaching. The discussion will allow participants to contribute strategies on how different levels of "presence" may overcome the fear cycle being created. The "presence" of teaching, social and cognitive presence will be debated (Garrison, Anderson & Archer, 2010).

Students in higher education should acquire critical/creative thinking, metacognition and self-directed learning skills to use in lifelong learning. In the acquisition of these skills, interactive and guiding potentials of online learning, e-learning, and blended learning play an important role (Garrison & Anderson, 2003). Zull (2002) states that "learning is about biology ..... and teaching is the art of changing the brain." The true art is understanding how the neural pathways work in the brain. Being able to create conditions that lead to change the learner's brain requires knowledge of these neural pathways. Understanding the brain structure and pathways that create fear and motivation for learners becomes critical in online learning. How memory plays a role in learning. The learner's frontal cortex must be engaged to make meaning and memory transfer possible. This ultimately transforms knowledge into action and deepens lasting learning (Zull, 2002). The community of inquiry (CoI) framework has been widely used in literature and is appropriate for current applications in online, electronic and blended learning. The CoI framework model was formed between the years 1996-2001. It was proposed and written in 2000 by Garrison, Anderson, & Archer (2000; 2010). It aimed to investigate the nature of an ideal educational experience. This educational experience requires two purposes: the construction of meaning with a personal perspective; and a discussion and affirmation in collaboration with these meanings in a community. Using these as our basic premise, we will invite participants to discuss a variety of strategies that meet these standards.

1. Understand the fears within the neural pathways that motivate learners. 2. Create awareness of strategies that address these fears 3. Provide a series of questions to initiate discussion: \* How to construct meaning with a personal perspective? \* What allows discussion and affirmation in collaboration with these meanings in a community?

This conversation provides information on current brain studies that contribute to an understanding of how fear of online learning needs to be unlearned. Using community of inquiry's (CoI) theory (Garrison & Anderson, 2003) where constructing meaning in different "presence domains" makes a difference in dispelling fears of online teaching. The discussion will allow participants to contribute strategies on how different levels of "presence" may overcome the fear cycle being created. The "presence" of teaching, social and cognitive presence will be debated (Garrison, Anderson & Archer, 2010).

Facilitation will include a brief didactic presentation to set a clear focus. A formatted circle discussion will follow and expand into conversation to include questions and strategy sharing.

Allen, I. E. & Seaman, J. (2010). Learning on demand: Online education in the United States /online/. Retrieved on May 25, 2015 from <http://sloanconsortium.org/publications/survey/pdf/learningondemand.pdf>.

Allen, I. E., & Seaman, J. (2012). Conflicted: Faculty and online education. Babson Survey Research Group.

Garrison, D.R., Anderson, T., & Archer, W.(2000). The first decade of the community of inquiry framework: A Retrospective. *Internet and Higher Education*.13 (2010), 5-9.

Garrison & Anderson, (2003). *E-Learning in the 21st century: A framework for research and practice*. London: Routledge/Falmer. doi:10.4324/9780203166093

Garrison, D. R., Ed. (2010). *An Introduction to Distance Education: Understanding Teaching and Learning in a New Era*. (1st Ed.).

Zull, J. E. (2002). *The Art of Changing the Brain*. Stylus Publishing: Virginia, USA.

## Assessing Hybrid Project Based Learning in Health Sciences Programs

Yolanda Savoy; Shelly Pauling, Stratford University

In the School of Health Sciences, several programs are piloting project-based pedagogy for the development of critical thinking, decision making and problem solving skills. In using a hybrid delivery method, modules that incorporate project-based learning have been developed to provide students opportunity to tackle real world scenarios. Limitations to this study insufficient evidence of passing competency based exams, patient interaction and training in the use of technology. The recommendation is to integrate hybrid project-based pedagogy in all, undergraduate and graduate programs without minimalizing the competency requirements.

There are many factors that are driving changes in health care delivery, including increasing demand due to our national demographics, the impact of a broken economic system on health care, and the introduction of new tools and technology (Lang, 2014). One of the biggest challenges facing our health sciences education curriculum is staying current of trends in the field and responding proactively as the healthcare industry develop new programs. According to Lang (2014), team-based delivery and integrative medicine are growing trends in health care. As a result, health science education programs are incorporating this multidisciplinary approach as they plan new facilities. Incorporating a multidisciplinary approach requires universities to incorporate flexible classrooms and simulation spaces to accommodate teams of learners from various disciplines. These efforts foster collaboration, communication and a better understanding of roles and responsibilities of the health professional. In meeting the needs of the health care delivery systems, academia is faced with providing a robust curriculum that will challenge the students while offering real world applications. The benefits of project-based learning (PBL), according to Ntombela (2015), are learning modifications from being teacher directed and to more student driven. In doing so, students build transferrable skills that are applicable beyond the academic realm and meet the needs of the 21st century framework for learning; which is promotes a more pedagogic curriculum. Supporters of project-based learning claim that as students investigate and seek resolutions to problems, they acquire an understanding of key principles and concepts (Blumenfeld et al., 1991). Project-based learning also places students in realistic, contextualized problem-solving environments (CTGV,

The aim of this discussion is to consider the effects of hybrid project-based pedagogy in Health Sciences curriculum to assess possible retention and placement. The conversation will explore an emerging educational trend in project-based curricula, with a specific focus on clinical disciplines. Exploration of the discussion will address limitations and benefits of incorporating project-based assessments in a primarily competency-focused curriculum.

Topics are intended to serve as a guide to instructors and educational programs seeking to develop, implement, and evaluate innovative and practical strategies to transform students' learning experiences with considering project-based learning in Health Sciences Programs. • Is hybrid project-based learning beneficial to clinical disciplines? • What limitations would arise from introducing hybrid project-based learning to a clinical discipline? • Will hybrid project-based learning allow for student assessments in patient interaction? • Is hybrid project-based learning an innovative approach to passing competency-based exams? • Will hybrid project-based learning meet the standards of allied health programmatic accreditation?

Interactive scenarios will be demonstrated and conversation will be facilitated by the presenter about the current utilization of project based learning. This will be followed with a question and answer open forum.

- Blumenfeld, P., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., & Palincsar, A. (1991). Motivating project-based learning: Sustaining the doing, supporting the learning. *Educational Psychologist*, 26, 369–398.
- Cognitive and Technology Group, Learning Technology Center, Peabody College of Vanderbilt University. (1992). Technology and the design of generative learning environments. *Educational Technology*, 31, (5), 34-40.
- Lang, D. (2014, December 16). Reaching Higher: Transformation in Health Science Education | HGA. Retrieved October 10, 2016, from <https://hga.com/media/publications/reaching-higher-transformation-health-science-education>
- Ntombela, B. S. (2015). Project Based Learning: In Pursuit of Androgogic Effectiveness. *English Language Teaching*, 8(4), 31-38.
- Wurdinger, S., & Qureshi, M. (2015). Enhancing college students' life skills through project based learning. *Innovative Higher Education*, 40(3), 279-286.

## **Conversation about how message design principles (typeface, images sound, etc.) can be effectively incorporated into distance learning modules delivered via mobile devices?**

Eunice Ofori, Virginia Tech; kwame ANSONG-GYIMAH, Virginia Tech

In the past two decades, teaching and learning has undergone rapid transformation partly because of advances in technology and access to such technology. Mobile technologies (i.e. tablets, smartphones, and access to Internet) have become rampant, and is visible, even in the developing world and other remote areas. The adoption and leveraging of such resources into education (even within traditional mortar and brick school systems) are commonplace. There is a growing need to provide readily accessible learning resources (including content, collaboration, and feedback) to today's learner. Mobile technologies allow for learners to access such learning resources on the go. Message design principles advance empirical tools aimed at producing lessons that inure to effective learning. Careful search of literature, however, point to a situation where majority of research on message design for learning purposes largely dwell on print based media and non-mobile electronic media such as TV, Computers and Projection. The characteristics of mobile technologies set them apart from other forms of media. These include size, ways of interaction, speeds and locations of use. All of these characteristics impinge necessarily on the times of use, duration of use and characteristics of potential learners. Designing these messages effectively by following guidelines for designing for these devices will ensure that learners understand the content without any cognitive overload.

The use of mobile devices in teaching and learning date back to 1992, when John Sculley, CEO of Apple Computer, came up with the term personal digital assistant (PDA). Before 1995, no one ever spoke of "mobile learning", although the concept existed: books are the oldest support for mobile learning, and people have been using them on trains, airplanes, and boats. As PDAs gained popularity, people started realizing that these devices also had a potential for learning (Roschelle, 2003). According to the Pew Report (2013), "Nearly two-thirds (63%) of cell phone owners now use their phones to go online, according to a new survey by the Pew Research Center's Internet & American Life Project, we call them "cell internet users" (p. 1). The Report goes on to state that since 91% of all Americans now own a cell phone, it can be inferred that 57% of all American adults use their cell phones to access the internet. The existence of nearly 2.7 billion active mobile phones worldwide dramatically illustrates the huge potential for the mobile learning (mLearning) market (Ahonen, 2007). With the widespread use of mobile devices in education for teaching and learning purposes, there is the need to ensure that information displayed on the mobile device screen is designed to help learners comprehend the information displayed on it. A "message is a pattern of signs (words, pictures, gestures) produced for the purpose of modifying the psychomotor, cognitive or affective behavior of one or more persons. Message design can be explained as the systematic and purposeful process of making decisions about communication, which involves decisions about both the content ("what") and the delivery ("how") of a message (Dye, 1997). Guiding principles will aid in effective instruction.

The goal of the session is to generate a discussion that will lead to the sharing of ideas and experiences in the area of message design for mobile devices. Session Objectives • Lead an engaged discussion of message design (especially for mobile learning) • Share experiences on use of mobile devices for learning • Produce a list of important message design considerations for mobile learning

The use of mobile devices for learning purposes has evolved rapidly. Mobile learning has attracted a great deal of attention from researchers in diverse disciplines who have recognized the potential to apply mobile technologies to enhance learning, (Keskin & Metcalf 2011). Based on the research conducted, viewpoints on defining mobile learning generally fall within the following categories: ? Use of mobile device, such as a PDA, mobile phone, iPod, PlayStation and portable computers. ? Connection to e-learning. ? Supplementing formal education. ? Learner-centered For any information to be meaningful to its audience, there is the need to ensure that the message or information being conveyed is clearly stated. Redish (2000) states that "To develop a successful document (or any other type of product, such as a website, software application, or hardware device) requires a process that starts with understanding what you are trying to achieve, who will use it, how they will use it" (p. 163). The elements of message design as stated by Wang and Shen (2012) includes, language, images, signs and symbols. Wang and Shen (2012) focused the importance of message design on how the brain works, indicating that "the goal of message design is to coordinate these elements so that they work together in our brains to provide better accessibility, usability and learning" (p. 569) Messages designed for learners' consumption is presented in different forms such as

text (print typography and its heritage), maps, graphics (graphs, diagrams, charts, tables), Pictures and Photographic media, and visualization (video, animation, sound, computer interface design). A message designer should see intended information for learners as not complete until learning has taken place. Guidelines must be carefully followed in designing for Mobile learning.

A presentation (about 5-10 minutes) of message design and mobile learning will be made. After the initial presentation, the facilitator will open up the meeting for discussion and contributions, allowing for as many participants as possible to share their opinions and ask questions. Other participants will be encouraged to attempt to either answer these questions and provide further examples of experiences. Where there is limited participation, the facilitator will share more details of work done so far in this area, and will ask probing questions to participants in hopes of encouraging them to actively take part in the discussions. Facilitator will also share materials of good and bad designs for participants to discuss why they are good or bad to draw them into the conversation. Facilitator will also share examples of good and bad designs and ask participants to choose which ones are good and bad and the reasons for their choice. The facilitator will also share examples of good and bad design and ask participants to choose which are good and bad and the reasons for their choice.

**Conversation on inclusive pedagogy: Understanding international students' barriers  
when attending college in the U.S.A.**

Homero Murzi, Virginia Tech; Maia Greene-Havas, Virginia Tech; Xiaotian (Vivian) Li, Virginia Tech

International students represent a growing population in higher education in the United States. They are important not only because they bring financial benefits to the economy, but also because they enrich academic programs by bringing their unique perspectives. However, international students face several barriers when attending college in a different country for the first time. Furthermore, the lack of context in their college experience minimizes several learning opportunities during their academic experience. Research has shown that sense of belonging is a crucial aspect to succeed in higher education. The purpose of this initiative is to start a conversation on the perceptions that faculty members have about international students, and how to develop better learning environments that help international students minimize the barriers that they have, and succeed academically. Our interdisciplinary team, composed of one faculty member teaching intensively in the first year engineering program, one academic and career advisor for engineering students, and one representative from the Cranwell International Center, plan to share some preliminary data based on focus groups conducted with international students to start the conversation on what faculty and administrators perceptions of their barriers are, what support systems should be implemented, and what pedagogical strategies and instructional interventions we can develop to help them smoothly navigate their academic programs.

The international student population in the United States is a very important sector in higher education. This population has been growing considerably in the last decades, having a financial impact on universities across the country (Downey et al., 2006; Kwon, 2009; Wang, 2008). According to Wang (2008) in 2004 international students brought over 13 billion dollars to the US economy. Furthermore, they are important because of their diverse perspectives (Kwon, 2009). According to Kwon, international students bring unique contributions to a culturally diverse society by providing a variety of insights coming from their early academic and life experiences in their home countries. Thus, international students not only are beneficial to the country for being economic drivers, but also because of the enrichment they bring (Adams, Atman, Nakamura, Kalonji, & Denton, 2002; Kwon, 2009). However, international students face at least three major issues when coming to the US to enroll in academic programs: (i) engaging in a new social and academic environment (Burdett & Crossman, 2012; Wang, 2008), (ii) using English as a second language and in academic settings (Burdett & Crossman, 2012; Watkins & Green, 2003), and (iii) experiencing "culture shock" relating to American culture and academic culture of higher education institutions (Downey et al., 2006; Wang, 2008). Although extensive research has been conducted on international students (Gu, Schweisfurth, & Day, 2010; Ladd & Ruby Jr, 1999; Poyrazli & Lopez, 2007; Reinters, Beusaert, Grohnert, Niemantsverdriet, & Kommers, 2012; Rose-Redwood, 2010; Sherry, Thomas, & Chui, 2010; Wang, 2008), there are no studies that analyze first year engineering students and that can provide recommendations on how to better provide support for them. Hence, the need to start conversations among faculty members and academic advisors regarding the understanding of the barriers international students face to provide adequate support systems.

The purpose of the conversation is to reflect on how faculty members and administrators perceive what are the barriers international students face in their first year in college in order to develop pedagogical interventions and support systems to help them overcome these challenges. Overall, we expect the participants to engage in conversations regarding:

1. Participants will reflect on their perceptions of international students' barriers when entering college in the United States.
2. Participants will be shown what are the main barriers international students expressed they face, based on our research, and will be able to compare and contrast their perceptions with what the students say.
3. Participants will understand the need to apply and develop inclusive pedagogical approaches and design inclusive learning environments that recognize the contexts of students outside the U.S.
4. Participants will contribute in the discussion on how to develop support systems, inside and outside the classroom to help international students succeed in their academic programs.

The conversation will be around international students, the barriers they face, and the support they need to receive. We plan to start providing the background on some statistics regarding international students in the U.S.A., and their importance for the country. Then, we will have people reflect with peers (think-pair-share) on what they believe are the barriers. We will have discussions about why these can be barriers and how they might impact the performance and retention of international students in college. We will then form discussion teams in which each team will

provide a set of recommendations on what we can do from the pedagogical perspective (inside the classroom), mentoring perspective (as instructors), and advising perspective (formal support systems). Finally, we will share our team discussions with the larger audience and will leave with recommendations for faculty members, student support providers, and administrators.

Participants will have the opportunity to engage in the discussions through initial individual reflection, then through group conversations working collaboratively during the session. The premise is to engage the educator in ideas being presented, to actively interact with other participants and understand their views, and for participants to experience how these ideas could work in their own classrooms with their international student populations. Furthermore, participants will be presented with current research conducted by the team regarding what international students actually express as the barriers they face, so they can compare and contrast their perceptions with the reality.

- Gu, Q., Schweisfurth, M., & Day, C. (2010). Learning and growing in a 'foreign' context: Intercultural experiences of international students. *Compare*, 40(1), 7-23.
- Ladd, P. D., & Ruby Jr, R. (1999). Learning style and adjustment issues of international students. *Journal of Education for Business*, 74(6), 363-367.
- Poyrazli, S., & Lopez, M. D. (2007). An exploratory study of perceived discrimination and homesickness: A comparison of international students and American students. *The Journal of Psychology*, 141(3), 263-280.
- Rienties, B., Beausaert, S., Grohnert, T., Niemantsverdriet, S., & Kommers, P. (2012). Understanding academic performance of international students: the role of ethnicity, academic and social integration. *Higher education*, 63(6), 685-700.
- Rose-Redwood, C. A. R. (2010). The challenge of fostering cross-cultural interactions: A case study of international graduate students' perceptions of diversity initiatives. *College Student Journal*, 44(2), 389.
- Sherry, M., Thomas, P., & Chui, W. H. (2010). International students: A vulnerable student population. *Higher education*, 60(1), 33-46.
- Wang, J. (2008). A study of resiliency characteristics in the adjustment of international graduate students at American universities. *Journal of Studies in International Education*.

## **Conversation Session: Navigating Experiences with Diversity in STEM Fields**

Chantel Simpson, Virginia Tech; Matthew Spindler, Virginia Tech

Recruiting talent from a diverse pool of potential agricultural professionals is essential to increasing variation in thought and accelerating the emergence of creative solutions to STEM challenges in agriculture. However, people from minority groups are not pursuing careers in agricultural STEM fields despite a growing number of accessible opportunities. Part of the reason for that is related to how people form their identities and how individuals from minority groups perceive the “otherness” expressed as an outcome of their interactions with majority groups and culture. The development of identity and the understanding of self are two facets of life that are constructed based upon shifting self-representations that meld together professional, social, and collective identities and promote an “illusion of wholeness.” For persons within minority groups, the illusion of wholeness involves not only the melding of professional and social identities, but it also often involves the development of identities that govern behavior and perception among both minority and majority groups. A person’s self-conceptions tend to form based upon the internalization of how others see and treat them. This study employed review of related literature and a symbolic interactionism framework to describe what is known about the identity development of people from minority groups in agricultural STEM fields. The findings present strategies to better recruit, train, and retain persons from minority groups within agricultural STEM careers and agricultural organizations.

While significant strides have been taken to mitigate the skills gap between American employers and potential employees, there is still a significant issue surrounding the diversity of persons entering into the STEM based fields. Business leaders from throughout the nation are beginning to acknowledge that diversity is an important factor in the success of a company as it contributes significantly to innovation (Hunt, Layton and Prince 2014). STEM and agriculture careers in particular are usually fields dominated by Caucasian males, which makes up 71% of the STEM workforce (Landivar, 2013). In fact, only approximately 6% of the STEM workforce identifies as African American and 7% identify as Hispanic and/or Latino (Landivar, 2013) According to Downey, van der Werff, Thomas and Plaut, 2014, diversity and inclusion practices were associated with workplace well-being and engagement for the creation and maintenance of a trusting workplace environment, focusing heavily on inclusion as a component in the development of trust because it correlates with whether or not a person feels as if they are an insider within the organization by having access to various intra-networks and involvement in the decision making process (Downey et al; 2014). According to McGee (2016), students of color entering into STEM-based studies and arguably STEM-based workforce have often been perceived as incompetent, subsequently forcing students to prove themselves capable of participating in the coursework and encouraging them to fractionate their identities in order to mitigate some of the impacts of racism and discrimination. (McGee, 2016).

The goals and objectives of this session will be to: 1. Define and Unpack the successful / strengthening experiences of people of color in STEM programs of study and workforce 2. Explore ways to strengthen identity development of people of color in STEM programs of study and workforce

The use of the 5-D model of appreciative inquiry (Defining, Discovery, Dream, Design, Destiny) for the development of more inclusive recruitment and retention strategies for minority students in STEM related fields (Cooperrider et al, 2008).

This session will open with introductions of facilitators and participants followed by a short presentation about the topic. An appreciative inquiry model using the world cafe approach will be used to identify the beneficial practices that are being used within strategies for the recruitment and retention of minority students and to pinpoint areas of consideration regarding the implementation of diversity and recruitment initiatives. Participants will be placed into groups with flip charts and markers at each table and given several minutes to brain storm ideas to fit a specific context related to diversity recruitment and retention before rotating to the next station. After each group has completed the rotation, participants will reconvene as a whole group to discuss emerging themes, determine goals and interpret the conditions necessary to reach the goals (Priest et al, 2013).

## **Conversation: Adapting the Principles of GTA and New Teacher Mentoring to Multiple Contexts**

Jessica Beckett, Virginia Tech; Adele Williams, Virginia Tech; Sarah Hansen

This conversation session asks participants to consider how to apply best practices in GTA mentoring and new teacher training to the complexities of their own institutional, departmental, or programmatic contexts. Each department and academic program has demands on its budget, maintains existing structures of GTA or new teacher training—including a reliance on institution-wide training programs—operates within discipline-specific definitions of good teaching, and is populated by faculty with varying levels of experience and willingness to participate in the mentoring of new teachers. In addition, GTAs and new teachers face stringent demands on their time, hear various messages about the value of teaching in comparison to their research or studies, and bring a variety of experience levels and expectations to the mentoring relationship. These specific contexts mean that GTA mentoring in a given situation won't look identical to the contexts that appear in literature on mentoring practices. This session provides conference attendees with an opportunity to explore their own departmental or programmatic contexts and consider how to implement or modify GTA and new teacher training. The presenters in this session will provide research-based best practices, their own case study research on the implementation of those best practices, and guided conversation to help conference attendees navigate a formal or informal mentoring program in their own department or educational program. As a conversation session, presenters will provide a framework for attendees to map the context for GTA and new teacher mentoring, determine the factors that affect or limit GTA and new teacher mentoring, and brainstorm strategies for adapting best practices to their own contexts.

As universities participate in the common practice of employing Graduate Teaching Assistants to serve not only as TAs but as teachers of record, it is essential to train those GTAs in sound pedagogical practices. In their landmark study, Boil and Boyce (1998) claim that effective mentoring of new teachers relies on mentor and mentee engaging in thoughtful and well-planned practices, beginning early in the new teacher's career—or even pre-career—the mentee developing and articulating a clear sense of what they desire from their mentor, that mentoring be practiced habitually, and that mentoring be regulated, formalized, or coordinated (pp. 160-161). Mentoring new educators in sound pedagogy is more complicated in actual practice, however. Darwin and Palmer (2009) claim that authenticity and collaboration are also essential to educator mentoring, and they critique the context-less practices that Boil and Boyce (1998) provide, suggesting that typical, program-assigned, one-on-one mentoring relationships lack the benefits of collaboration and authenticity. Instead, these authors propose the use of “Mentoring Circles,” which are small group meetings in which the mentor is merely the facilitator of conversations and peer-to-peer mentoring (Darwin & Palmer, 2009). Darwin and Palmer (2009) highlight the importance of commitment, authentic relationships, collaboration, and cross-disciplinarity in new faculty mentoring. The context of a mentoring program—including the faculty mentors, the department climate, and the nature of the mentoring relationship all impact the success of the mentoring experience. Knight (2002) claims that good teaching is defined by each educator both individually and by a set of “shared ideas of what teaching and higher education are” (1). Therefore, it is crucial to intentionally shape those ideas and provide new classroom teachers with a community to support them as they develop their own classroom habits and practices. Knight (2002) uses complexity theories associated with discourse studies, cultural linguistics, and social constructionism to explore a system in which he believes individual tacit knowledge, tacit knowledge embedded in community practice, individual explicit knowledge, and explicit knowledge in an activity system develops “learning as a social achievement” (pp. 28). Knight's (2002) work demonstrates the importance of environment and relationships in higher education teaching and new teacher mentoring.

1. To encourage and improve the implementation of mentoring and new teacher training in higher education 2. To educate program administrators, faculty, and GTAs regarding best practices for new teacher and GTA mentoring 3. To provide a framework for program directors and administrators, faculty, and GTAs to understand and critique the application of best practices 4. To generate new avenues for research into the application of new teacher and GTA mentoring At the end of this conversation session, participants are expected to: 1. Recognize the need for and articulate best practices in GTA and new teacher mentoring 2. Demonstrate an understanding of the nature of their program or department and the role of GTA and new teacher mentoring within their program or department 3. Identify the factors of their own programmatic or departmental context that affect the implementation of best mentoring practices 4. Generate practical strategies for implementing or improving GTA and new teaching

mentoring within their own programs and departments a. The audience will leave with a set of strategies for applying research-based best practices to the complexities of their own programmatic or institutional contexts.

The scope of this conversation encompasses existing research into mentoring practices and practical implementation of those practices. It also utilizes case study research from the presenters who explore these best practices and the mentoring relationship from the perspective of faculty mentor, new GTA with no teaching experience, and new GTA with prior teaching experience. Formalized mentoring is not always successful, and the lack of success can be contributed both to interpersonal factors and to institutional or programmatic factors. The conversation will mainly focus on issues such as: How do different mentor programs differ? What is problematic and helpful about these differences? How does place and identity complicate it? More specifically, conversation might explore the scope of the training program; the pairing of field-specific and multidisciplinary experiences; the way faculty mentors are chosen and vetted; and how mentees are paired with their mentors, considering research interests, teaching experience, and the role of gender and personal identity. Discussion will help participants explore the role of their own personal, programmatic, and institutional contexts in the formation of mentoring relationships and the success of a formalized mentoring program.

This session will include a brief presentation from presenters to establish the topic and literature, and will divide the conversation into three smaller guided discussions: 1). Mapping the context, 2). Determining factors, 3).

Brainstorming strategies. Presentation: The presenters will provide a brief overview of established best practices, and then use case study research to overview the successes and failures of implementation in their own program, highlighting the contextual factors that limit and enable these best practices. This ten minute presentation will illustrate the role of context in the application of best practices in order to establish the issue for attendees. In particular, the presenters will engage the audience in exploring the application of best practices from the perspective of the faculty mentor, the new GTA, and the GTA with prior teaching experience, in order to consider how to adapt mentoring practices to a given program or department's goals and practices, as well as to its individual mentors and mentees. Conversation: If the number of attendees allows, the presenters will divide the attendees into smaller discussions groups (5-10 attendees), in order to facilitate open dialogue and manage allotted time. The conversation will be divided into three parts: 1. Mapping the program: attendees will be provided with discussion questions that will enable them to make explicit the nature of the program and department in which they do or wish to mentor new teachers and GTAs 2. Determining factors: attendees will be provided with discussion questions that ask them to identify and explore some of the constraints that affect new teacher and GTA mentoring within the program or department they mapped. 3. Brainstorm strategies: the final stage of discussion will build on previous conversations to guide participants in developing and sharing practical strategies for adapting to program and department contexts and implementing best mentoring practices.

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### **Conversation: Appreciative Inquiry in Undergraduate and Graduate Research Advising**

Carl Dietrich, Virginia Tech; Cecile Dietrich, Radford University; Richard Goff, Virginia Tech; Seungmo (Mo) Kim, Georgia Southern University; Pamela Frasier, Radford University; Vuk Marojevic, Virginia Tech; Nicholas Polys, Virginia Tech

Research advising at the graduate and undergraduate levels is a taken for granted, but essential function of higher education faculty. Research advising is necessary to the development of the future professorate as well as to the development of highly-prepared industry specialists. However, unlike teaching and learning in higher education, advisement is not subject to the same kinds of evaluation and critique, since best research advising practices are more often tacit rather than explicit and few published guidelines are available. This conversation begins by summarizing the components of appreciative inquiry, an approach rooted in social constructionism and widely applied in organizational development that has been adapted to academic advising (i.e., appreciative advising). Then the authors describe what is known about appreciative advising. The authors then invite conversation participants to describe their own advisement practices and invite the participants to formulate an approach for developing best practices in research advising based on the appreciative inquiry model. This conversation is intended to explore the use of appreciative inquiry as a promising advising practice, particularly for students who are first generation researchers.

The term Appreciative Inquiry was coined by David Cooperrider and Suresh Srivastva in “Appreciative Inquiry in Organizational Life” Cooperrider and Srivastva (1987), who followed a social constructionist approach and posited that organizations are fundamentally created, maintained, and changed by conversations within the organization; methods of organizing and evolving were only limited by people's imaginations and the agreements among them. This view also applies to any relationship between and among individuals. Since 1987, Cooperrider along with various colleagues has authored over 150 scholarly works on Appreciative Inquiry. The approach has migrated from organizational management into academic advising at all levels and universities as a whole (Sniff, 2014; Scerri, Innes & Scerri, 2016). Scholars have used appreciative inquiry in other conversations including undergraduate and graduate advising (Barnes, Chard, Wolfe, Stassen, & Williams, 2011; Bloom & Martin, 2002; Bloom, Propst, Cuevas, Hall, & Evans 2007) and in dealing with multicultural issues in graduate advising (Schlosser, Lyons, Talleyrand, Kim & Johnson, 2011; Schlosser, Talleyrand, Lyons, Kim, & Johnson, 2011). Use of Appreciative Inquiry involves moving from a problem solving approach to facilitating future possibilities for students. This approach to advising entails a shift from prescriptive advising approaches towards a student centered model (Williamson, 2017). Appreciative Inquiry is using positive questioning with an eye on the future to create conversations for possibilities in many arenas today. Appreciative inquiry formed the basis of Appreciative Advising (Bloom, Hutson, He & Konkle, 2013; Bloom & Martin, 2002; Bloom, Propst Cuevas, Hall, & 瘡渦w(一)~

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The primary goal of this conversation is to explore the potential for applying principles of appreciative inquiry, an organization development paradigm rooted in social constructionism, and appreciative advising, an adaptation of appreciative inquiry to academic advising, to the distinct endeavor of research advising at the graduate and undergraduate levels. To initiate the discussion, we first review selected highlights of scholarship on research advising and the principles and components of appreciative inquiry and appreciative advising, and then invite participants to share their own research advising approaches and ideas for formulating research advising best practices that incorporate aspects of appreciative inquiry and / or appreciative advising. Objective 1: Summarize literature on research advising including identified and proposed researcher roles and practices. Objective 2: Describe principles of appreciative inquiry and appreciative advising and components of their implementation in practice. Objective 3: Explore potential integration of appreciative inquiry and appreciative advising approaches with results of research advising scholarship to formulate best practices for research advising.

Scholarship on research advising has identified common roles of research advisors including teacher, encourager, role model, counselor, and sponsor-socializer (Bloom et al., 2007; Selke & Wong, 1993). Meanwhile, appreciative advising was crafted as an approach from Appreciative Inquiry in organizational development, based on the principles of Cooperrider and Whitney (2001). The first guideline given by Appreciative Advising is to “believe in

the goodness of each student who walks through your door (Bloom & Martin, 2002, para. 6). A qualitative study by Bloom et al. (2007) distilled the following characteristics of successful graduate advisors: showing care, being accessible, serving as a role model, tailoring guidance, and proactively integrating the student into the profession. However, little research has been done to investigate application of appreciative advising principles to advising of graduate and undergraduate students' research projects. We consider research advising as distinct from academic advising, which focuses on selection of majors, courses, and career goals (see Khali & Williamson, 2014; Truschel, 2008), although there is some overlap between the two functions.

After a brief review of the literature and discussion of our advisement practices, we will use processes borrowed from appreciative inquiry to facilitate a discussion of appreciative research advisement. We will apply appreciative inquiry principles in facilitating the conversation. We will use a flip chart or document projector to record and summarize responses. Appreciative inquiry principles and examples of corresponding questions for use in facilitation are given below: Appreciating & Valuing the Best of "What Is": • What are the best / most useful ideas put forth in research advising scholarship to date? • What aspects of appreciative inquiry / appreciative advising are already present in common research advising approaches? • How do the phases of appreciative inquiry and appreciative advising map to the various roles of a research advisor? Envisioning "What Might Be": • What aspects of appreciative inquiry / appreciative advising could be applied more fully to research advising? • What might this look like in practice? Dialoguing "What Should Be": • What aspects of appreciative inquiry / appreciative advising are most applicable to research advising? • Which of these aspects do we expect would have the greatest benefit? • What types of studies are needed to test these ideas? • How could the results be applied to develop best practices?

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## **Conversation: Beyond the Video – Engagement in a Flipped Classroom**

Caleb Adams, Radford University

Flipped learning has begun making a regular appearance in the collegiate classroom across the country. As an instructional practice, flipped learning has been found to be a useful across many disciplines; however, for both novice and experienced instructors, the practice of using videos as the primary instructional tool for content delivery remains the focus of the flipped class. During this conversation common practices related to flipped learning will be presented. An examination of student-centered activities will follow with a discussion centered about how to enhance student engagement in the classroom.

For nearly the past two decades the concept and use of flipped learning has become a popular practice in higher education (Johnson et al., 2005). As one form of student-centered learning, this practice has been reported on improving achievement (Adams & Dove, 2016; Lawson et al., 2002) and decreasing student learning anxieties (Tooke & Lindstrom, 1998). Beyond improvements on grades, McLean et al. (2016) report potential exists for deeper thinking and more active learning in the flipped classroom in addition to as value students expressed at the peer-peer and peer-instructor interactions that exist in this learning style. Content delivery is often in the form of instructor-generated videos placed online or through a learning management system. An important facet of the flipped classroom is the collaborative learning experience. Without this important student-centered active experience, the flipped classroom is no better than a classroom centered about the instructor's lecture (Foldness, 2014). What student-centered activities are presently utilized to enhance the flipped classroom experience? What practices are most effective in retention of content material and which assist students in making connections between content topics? This session will examine what an instructor can do to improve their courses and enhance their students' learning experience in a flipped classroom.

This Conversation Session proposes the following objectives: • Participants will identify common practices used by instructors in creating content videos and what characteristics make a quality video. • Participants will identify effective practices that can be incorporated into a flipped class to enhance student learning • Participants will discuss types of student-centered activities instructors can use to improve their classroom.

The primary topic presented in the conversation is the use of student-centered activities within the flipped classroom. Experienced instructors incorporating active learning methods will be able to share their most effective practices while novices to this learning and teaching process will gain insights as to what makes the flipped classroom effective. The goal is to take instructors beyond the creation of a content video and into the classroom where the connections between the content and intended learning outcomes take place. Although evidence exists that the flipped classroom model improves student achievement and enhanced engagement, instructors may be reluctant to take this approach in their classrooms as what is considered a “flipped” classroom is not uniformly defined. Some of the reluctance from instructors can be diminished through the use of focused student-centered activities. However, it is recommended that instructors have a variety of activities in their repertoire to keep the classroom “fresh” and “exciting.” This conversation will allow participants to provide insight to others who are interested in creating engaging and intuitive activities as well as enhancing the perceptions of the flipped classroom to experienced instructors.

The conversation session will begin with a short synopsis of the active learning approach of flipped learning, including the mediator's personal experiences. Pros and cons of the mediator's experiences as a flipped instructor will be revealed. Session participants will then be given instructions to facilitate the overall conversation. Small groups (ideally between 3 and 5, depending on attendance) will be provided approximately 8 minutes to discuss topics as delivered by the mediator. The topics for discussion include: • Beyond having students watch your content videos, what do you currently do or wish to do in the flipped classroom? • What difficulties have you had or you believe exist during the in-class portion of the flipped classroom? What solutions can you recommend to your group members? • Identify your favorite, or most impactful, activity you have done with your students in the flipped classroom. A quick summary session will follow each topic discussion (a maximum of 5 minutes per topic) with the mediator recording results. For the interested participants, the mediator will collect contact information in order to continue the conversation following the conference.

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## **Conversation: Case-in-point Teaching Approach to Educating Adult Reflective Practitioners**

William Davis, US Army Command and General Staff College

One of the most significant challenges for any educator is how to communicate tacit knowledge to students so they might become effective practitioners of the material. Being a professional educator and subject matter expert guarantees neither expert teaching by the faculty, nor expert learning for students. Most faculty have a vision of the perfect seminar environment, but the majority will fall short of this vision. This session will provide theory based proven techniques developed over 20 years of graduate level seminar teaching that create an active adult learning environment producing reflective practitioners using the case-in-point method. The philosophy, approach and techniques discussed will be foundational to constructing a positive adult learning environment thereby producing students who intricately appreciate not only the complexity of the subject matter but also its relationship to and how it is affected by the environment. As an educator of strategic and operational military planners, it is imperative that my students consider the complex environment within which they will apply their art. I have developed a principle based reflective design for developing the perfect adult learning seminar (evaluated by thousands of students at 100% for creating an active adult learning environment). This is accomplished through the application of a confluence of adult education theories and principles. This conversation will provide the necessary tools to the faculty member to begin to create the near perfect graduate level seminar.

Argyris and Schon (1974) clearly defined single-loop and double-loop learning. Double-loop learning happens when the person evaluates not only the action taken, but also the value that drove the action and asks “why am I even taking action?” It is the more reflective wisdom generated by double-loop learning that provides a more competent professional (Argyris, 1991). In teaching professionals, it is critical to intertwine any educational experience to andragogy principles (adults are self-motivated, experienced, goal oriented, relevancy oriented, practical, and want to be respected) (Knowles, 1984). These principles have been the catalyst for many trends now in higher education such as the ‘flipped’ classroom, experiential learning, and faculty behaving as coaches (Beret, 2012; Kolb, 1984; & Schon, 1987). Seminar learning has its roots in constructivism, and that philosophy of education underpins the use of all of the members of an adult seminar as a resource to achieve higher learning outcomes (Dewey, 1916; Vygotsky, 1978). In *Leadership Can be Taught*, Parks (2005) aptly documented Harvard professor Ron Heifetz’s use of this multi-theoretical approach to learning, called case-in-point teaching. Case-in-point teaching uses free-flowing classroom discussions generated through many methods to promote adaptive challenges within the seminar thereby simulating the mental agility that will be required in the practicing world. With so many valid complementary theories, it is imperative for any faculty member to have mastery of as many as possible to be able to understand the right theory to apply at the right time to maximize learning in the seminar environment. This session will incorporate a multi-theory approach to creating the perfect active adult learning environment and thereby developing reflective practitioners.

Goals and Objectives: Upon completion of the session, the participants will be able to: 1. Understand and appreciate the relationship among various adult education theories and principles that are the basis for the “flipped” classroom, the Socratic method, and increased student learning. 2. Understand why it is important to develop reflective practitioners within the attendee’s discipline. 3. Develop an interactive, discussion based lesson plan grounded in case-in-point teaching techniques that increases learning and supports the development of a reflective professional.

The main idea to be discussed is how to use a multi-theory approach to creating an active adult learning environment that will create reflective practitioners. It is important for the seminar leader to understand how to build classroom sense of community, use appropriate questioning, apply adult learning principles, and execute case-in-point teaching to develop a seminar that motivates life-long learners.

1. I will present one slide that has a case-in-point model that I developed and will brief that slide for about 5 minutes. 2. Critical analysis of author’s model for developing lesson plans to create positive seminar performance using a multi-theory approach that culminates in case-in-point teaching. This will include more in depth discussion of the philosophy of the faculty member in order to achieve the mastery of the case-in-point teaching method. (10 Minutes) 3. Create discussion among participants about what constitutes the “perfect” seminar; what are the common barriers encountered, and how have the participants overcome these barriers? Participants will be encouraged to share their own successes and failures in trying to generate a seminar environment that is conducive

to developing reflective practitioners who embrace deeper double-loop learning (30 minutes)? 4. Summary to include participants sharing how they might change what they are doing in the classroom to create a more active adult learning environment (5 minutes).

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## **Conversation: Cultivating and Assessing Holistic Problem Solving Skillsets: Challenges and Opportunities**

Shannon Conley, James Madison University; Michael Deaton, James Madison University; Mary Handley, James Madison University; Jeff Tang, James Madison University; Bob Kolvoord, James Madison University; Brent Robert, James Madison University; Amanda Biesecker, James Madison University

In this increasingly connected and global community, the problems faced by business, government, and society are substantial, complex, and multifaceted. Tackling such problems requires citizens and leaders who are equipped to deal with the ambiguities and complexity of such problems. Such “holistic problem solvers” must be capable of working across disciplinary boundaries, while engaging diverse, even contentious stakeholders to create a better future. What does a holistic problem solver look like, and how can curriculum and courses support their development? We kick-start our conversation session with a discussion of an undergraduate program that embodies this approach with a curriculum that is problem centric, as opposed to being discipline centric. James Madison University’s Integrated Science and Technology (ISAT) program was conceived, designed, and implemented from the ground up in the mid-1990’s. The four-year ISAT degree equips students with a broad base in the traditional sciences, and who are attuned to the social/political and science/technological dimensions of a problem. ISAT graduates are equipped to employ a distinctively holistic approach to tackling the problems that face organizations, communities, and society. This session will grapple with the question of how to cultivate holistic problem solvers, utilizing data from the ISAT 20th anniversary survey and experiences from ISAT faculty to begin the conversation. The facilitators will utilize guided discussion techniques as participants explore pilot data and the JMU ISAT Problem-Centric “Habits of Mind” (HOM), deliberate assessment methods, reflect on their teaching experiences, discuss barriers and challenges, and consider how they might apply a holistic problem solving framework in their curriculum and classrooms.

For several decades, there has been a growing awareness that educating citizens who can successfully meet pressing global challenges requires something more than a traditional discipline-centric education. A growing body of literature documents this educational challenge (e.g. Brown et al. 2010, Seagar et al. 2011, Bammer 2013, Clark et al. 2012, Bennett et al. 2010). Degree programs aspiring to address this need have appeared using descriptors such as “interdisciplinary,” “multi-disciplinary,” “integrated,” “systems-oriented”, “socio-technical,” and others. In some cases, these programs look very similar to existing disciplinary programs, with the addition of courses from other disciplines, all being taught in the traditional discipline-centric focus. In other cases, programs seek to achieve some sort of interdisciplinarity through a kind of jigsaw architecture, borrowing existing courses from multiple traditional discipline-centric degree programs and mostly taught from a disciplinary point of view (Clark, et al 2011). In these programs, the burden for doing the integration is thereby placed almost entirely on the students (Schlosberg, et al. 2017). Employers are now calling for “T-shaped” professionals that embody boundary-spanning characteristics. The capital letter “T” serves as a metaphor for an individual that possesses both breadth and depth of knowledge and skill. The top, or horizontal part, of the T represents a breadth of expertise, while the stem, or vertical, part represents a depth of expertise and skill in a specific field or domain (Conley et al. 2017). The term originated as a call for a new type of digital-age “renaissance person” who could synergize business management expertise with a deep knowledge of information technology (Guest 1991). But the question remains: How to cultivate these integrated, or “T-shaped,” skillsets within an undergraduate context?

This conversation will engage participants in reflecting on approaches to facilitating and assessing holistic problem solving skills in the undergraduate curriculum and classroom. The facilitators will describe efforts and challenges associated with teaching and assessing holistic problem solving in the Bachelors Degree in Integrated Science and Technology at James Madison University (JMU). Our conversation session aims to do three things. 1) We will first briefly share our approaches, tools, and data from JMU ISAT. 2) Participants will receive a copy of the JMU ISAT Problem-Centric Habits of Mind, and will compare/contrast these Habits of Mind to their own curricular frameworks from their home institutions. 3) Small group and break out activities will center around discussion regarding challenges and barriers (institutional, programmatic, cultural norms on collaboration, etc.) to teaching holistic problem solving, and how to facilitate and assess a student’s holistic problem solving capacity in a variety of educational contexts and disciplinary fields.

We will discuss a problem-centric curriculum in which students integrate the breadth and depth dimensions of the T in service of addressing real problems. This suggests a third dimension to the T -- a problem-centric instructional dimension that requires students to apply and integrate disciplinary knowledge work on complex problems. We describe this third dimension, which we refer to as holistic problem solving, in terms of a set of habits of mind - problem solving dispositions and accompanying set of practices - that enable students to productively contribute to interdisciplinary problem solving. We will pay particular attention to barriers and constraints to teaching holistic/T-shaped skills in a variety of institutional contexts.

A variety of active facilitation techniques will be used, including, but not limited to: • Small group break out discussion and brainstorming activities • Hands-on examination of the ISAT Habits of Mind • Guided large group discussion

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### **Conversation: Curriculum Development using Threshold Concepts and Personas**

David Reeping, Virginia Tech; Lisa McNair, Virginia Tech; Liesl Baum, Virginia Tech; Tom Martin, Virginia Tech; Steve Harrison, Virginia Tech; Matthew Wisnioski, Virginia Tech; Annie Patrick, Virginia Tech; Luke Lester, Virginia Tech

Faced with a curriculum ready for a thorough examination beyond reshuffling content, whether for a course or for a program, significant reform can be difficult to conceptualize, let alone enact. Moreover, beyond the discrete topics populating the syllabi, a deeper question about the courses concern the utility of the ideas and activities to the diverse population of students in the classroom. At the program level, the flow of students into a department is not just a set of admissions statistics; rather, we must consider who the program is designed to serve and how the curriculum can be intentionally formulated to compensate for the wide range of abilities and interests. The intended flow out of the program should also be accounted for, as a factory of workers laid upon a conveyor belt from “diploma to desk” at the typical portfolio of companies is not driven by educational values. In this conversation session we will present two novel methods for curriculum development originating from economics and user interface design, threshold concepts and personas respectively. Examples of both methods from an ongoing project to rejuvenate Virginia Tech's Electrical and Computer Engineering department's curriculum will be offered to contextualize the discussion.

Designing a student-driven curriculum should logically start with discussing who the curriculum is intended to serve and how it should work. Certain human qualities can be used to form abstract characterizations of students who will be applying to the college, populating the classrooms, engaging in projects within the college, and eventually walking across the stage in May (or December) – these profiles are called personas (Lidwell, Holden, & Butler, 2010, p. 182). Conceptualized in the seminal work of Cooper (2004), personas are a design strategy that helps designers consider the multidimensionality of the human experience and avoid designing for the fallacy that is the “average user.” Thus, personas bring a “shared basis for communication” (Pruitt & Grudin, 2003, p. 3), as the “average user” is split into more tangible constructs. To use the technique, the designer or team of designers creates a small set of “archetypal users” (Lidwell, Holden, & Butler, 2010, p. 182) that represent a conglomerate of users in a subpopulation. Using qualitative techniques such as interviews (Creswell, 2014, p. 191-192) to elicit distinguishing characteristics of the subpopulations, the resulting persona will include the following: a photo, name, description, interests, and specific behaviors relevant to the design (Lidwell et al., 2010, p. 182). Personas offer the designer(s) a social lens to curriculum, but a different tool aids in understanding how the discrete pieces of the curriculum fit together - threshold concept theory. Threshold concepts are ideas that are considered “troublesome” to learn (Meyer & Land, 2003). In the process of acquiring new knowledge, students pass through a liminal space – a conceptual purgatory where the student is aware of a concept and may mimic procedures to solve problems involving the concept without full understanding (Meyer & Land, 2003, p. 10). Once a threshold concept is learned, however, it transforms the student epistemologically and ontologically (Meyer & Land, 2003). The transformative nature is the defining feature of threshold concepts, but other qualities include: bounded, discursive, integrative, irreversible, and reconstitutive (2003).

The goals of this conversation session are as follows: Externally: Introduce participants to novel techniques in curriculum design, particularly those that elicit a critical examination of the following questions: first, those focused on the curriculum itself, -What defines transformative and essential knowledge in a curriculum? -How do the transformational and essential concepts relate to one another and bind other disparate ideas to them? and questions about the inputs to the curriculum, those that experience the design: -Who does the curriculum serve versus who do we want it to serve? -What outcomes does the curriculum produce in students in terms of career/professional pathways versus what career pathways are intended? Internally: Document feedback on the use of the design techniques and explore suggestions in the curriculum development process for the Electrical and Computer Engineering department at Virginia Tech.

The topic to be discussed is the process of curriculum design using threshold concepts and personas. Both are design techniques used to develop an end product, one being a curriculum and another a user-interface for a website or application. This session will discuss the combination of the theory of threshold concepts and the user-centered intentions of personas to design a curriculum that is not only pedagogically sound, but also meets a broader set of departmental and institutional objectives such as diversity in matriculation, retention, and ultimately graduation

rates. Examples will be centered in engineering, but will still be relevant to general education. Participants from all fields are welcome to join the session.

We will begin with a short, ten-minute overview of the two design techniques, threshold concepts and personas. Examples from an ongoing project in the Electrical and Computer Engineering department at Virginia Tech will be shared to spark discussion (Reeping et al., 2017). To guide the conversation, groups of three to four will be formed as appropriate. Guiding questions about who the curriculum is designed to serve from the participants' point of view in their contexts, whether at the course level or at the program level, will be posed. Matriculation and graduation objectives with respect to assumptions about the student population will also be considered. Also, the question of who should be involved in the process of development will be posed. (20 minutes) Facilitators will prompt the audience to share experiences where they have explored these, or similar, design techniques and lessons learned from those experiences. Facilitators will also prompt the audience to discuss the type of support faculty would need to explore the implementation of these design techniques in the redesign of their own courses, larger curriculum, or departmental structure. (20 minutes) The perceived value of using such design techniques to understand the students in their courses and programs will close the session. (10 minutes)

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**Conversation: Distributed community in online and hybrid learning:  
An emerging approach to learning in situ**

Adam Barger, College of William and Mary; Ryan Baltrip, College of William and Mary

Distributed community is an emerging approach to leveraging in situ learning to address the challenge of instructors and learners separated by physical space and lacking in-person community. Establishing an effective sense of community in online or hybrid environments should include people and resources in learners' physical location. Disparate approaches to fostering community as an instructional design strategy have not yielded consistent results in terms of connections and common experiences among student peers. Community distributed across online and individual spaces may provide new avenues for applied learning and authentic experiences. Through building a localized sense of community, instructors can encourage content connections and applications that reach beyond the online classroom. Sense of community among learners has long been an important factor in designing and delivering online or hybrid instructional experiences. As online and hybrid programming grows in higher education, instructors, designers, and administrators must embrace the new paradigm of students learning in their own space and place, in situ, as part of a network of individual learners. In this conversation, we report on initial patterns and gaps in the literature base and guide discussion on practical strategies for leveraging distributed community.

Much of the literature on community among learners emphasizes meaningful connections between peers rather than individualized community connections, in the learner's own space and place, that may help students apply what they learn in their own locality. Purposeful efforts to establish and enrich learner community as an aspect of online or hybrid learning environments often focus on communities of inquiry among instructors and students (Garrison, 2007), sense of community among peers (Rovai, 2002a, 2002b), or community in action for class projects (Sandy & Franco, 2014; Becnel & Moeller, 2016). These approaches inform, but fall short of, establishing a clear practical framework for leveraging the individualized nature of online and hybrid learning. Two perspectives, Community of Inquiry and sense of community, emphasize the togetherness of learners as a critical component of community. The Community of Inquiry framework (Garrison, Anderson, & Archer, 2000) includes three elements of community presence to help form meaningful educational experiences. However, the participant groups in these elements are usually limited to teachers and students (Garrison et al., 2000). Similarly, Rovai (2002a) argued a sense of belonging in distance learning is built among instructors and students when instructors foster community elements such as spirit, trust, interaction, and common expectations. Alternatively, learner community can be viewed as a path to practical application or learning in action, such as group-based service learning. Sandy and Franco (2014) contended the appropriateness of a service learning perspective in online learning hinges on instructors' willingness to recognize and leverage students' sense of geographic place. Service as a member of a community is not limited to one location, but can exist in multiple communities in proximity to the student. Similarly, Becnel and Moeller (2016) advocated for a community-embedded learning model in which students conduct projects in their own localities before sharing their experiences within an online community of peers. These approaches emphasize the reciprocal roles for in situ community and online community as essential ingredients for authentic learning experiences.

Participants will: Dialogue with peers about the various aspects of learning in community and how these aspects may contribute to a distributed approach to learning in situ. Discuss applications of instructional activities that promote community connections in their own institutional or teaching context Explore aspects of networked and service learning that could inform a distributed community approach

Distributed community is an emerging approach to designing online and hybrid learning experiences that capitalizes on students learning in their own geographic space. Departing from traditional definitions and approaches to building community strictly among peers, a distributed community approach leverages learning in situ to form community in relevant and practical ways for individual students. Local connections, mentor relationships, networking with experts, and community-based projects are examples of learning experiences that utilize geographic separation as an instructional advantage. Exploring these and other potential pathways for distributed community building will inform instructors, administrators, and designers to embrace individualized learning experiences rather than attempt to create community primarily among students

Pros and Cons: Participants discuss concepts of community among themselves and prepare one “pro” and one “con” for community efforts in traditional courses. Feedback/Reactions/Critique: Live polling software will be used to gauge participant reaction to community definitions. Reactions, comments, and resources will be tracked on a group Padlet page to encourage backchannel discussion and the creation of a reference or resource for the session. Outline: 1) intro presentation of idea (10 minutes); 2) thoughts on learning community for 10 minutes; PollEv & Padlet: 5 minutes Group talk: 5 minutes 3) thoughts on distributed community approach (20-25 minutes); PollEv: 5 minutes Padlet: 5 minutes Group talk: 10-15 minutes 4) thoughts how distributed community can be applied (5-8 minutes); and 5) thoughts on approaches that can inform distributed community (5-7 minutes).

## **Conversation: Engaging Pedagogy Inspired by Teaching in Virtual Spaces**

Terra Gargano, American University

Can lessons learned from teaching online serve as a catalyst for pedagogical innovation in traditional campus courses? Some faculty are reluctant to teach online, certain that it is not possible to accomplish the same level of engagement and authentic learning in a virtual space. Others simply question how to adapt and translate what is successful in the on campus classroom into a virtual environment. Yet, faculty who delve into online teaching are rewarded with expanded perspectives of student learning and engagement that influence pedagogical approaches to teaching in traditional classrooms on campus. Encouraging faculty to think differently about co-presence/online presence, faculty roles, threads of engagement, meaningful conversations, multiple modalities of communication, feedback, networking, information access, community building, flipped/blended learning, and classroom space/context, creates a portrait of the terrains of possibilities for the inclusion of student voices at every level. How can we further engage on campus students by incorporating the myriad of creative online teaching approaches used to in virtual classrooms into our traditional on campus classrooms?

How does teaching online and the training or professional development activities that faculty partake in to prepare themselves to teach in virtual spaces potentially influence how faculty teach on campus? While there are a plethora of resources to acquaint faculty with best practices for teaching online or how to adapt traditional classroom pedagogy for virtual spaces, there is little included in the discourse about how our pedagogical decisions in virtual spaces can inform our on-campus teaching approaches (Brookfield, 2015; Conrad & Donaldson, 2011; Laborie & Stone, 2015). Up until now, the conversation has been largely one-sided or viewed as a process of translation verse one of holistic transformation, meaning most faculty are trying to decide how to take their on campus course and adapt it to the online environment, with little consideration given to how the process of learning to teach online, crafting a curriculum for an online course, and teaching online influence how we teach our traditional, in-person on-campus courses (McQuiggan, 2012). This proposed conversation is a way to start that dialogue and realize the ways teaching online can make us better overall educators. This conversation is not about incorporating more technology in classrooms, but rather about teaching in virtual spaces and how the pedagogical decisions we make to be effective educators online can influence how we approach our teaching and engage students on campus. By examining the ways we approach topics such as co-presence/online presence, faculty roles, threads of engagement, meaningful conversations, multiple modalities of communication, feedback, networking, information access, community building, flipped/blended learning, and classroom space/context in our virtual classes, it is possible to reflect, share, and derive best practices.

The goals and objectives for this conversation session are to 1) create a space where faculty can reflect on the relationship between their online and on-campus teaching practices; 2) share best practices for examining, developing, and implementing innovative ways of expanding pedagogical repertoire; and 3) illuminate the ways teaching in virtual spaces (asynchronous and synchronous) can inform pedagogical approaches in traditional on-campus classrooms.

In the School of International Service at American University, our Online Program is the largest graduate program in the School, comprising over a third of the total graduate student population. We have approximately 350 students enrolled who log in from over 15 different time zones and over 100 faculty who teach with us from around the globe, many who teach on their home campuses as well. The composition of the faculty body in our program gives us a unique opportunity to explore and compare how their experiences in the virtual classroom influences how they teach on their home campuses, which are organizationally and culturally diverse. The goal of this conversation is to expand the connections that faculty may make between their online teaching and their on campus teaching. In that spirit, below is a personal reflection on how I now look at student feedback for my on campus students. Feedback from students about the class and feedback for students on their writing/work are important lines of communication to establish and support throughout the course. Online I provide detailed feedback on student assignments and papers through videos because it is built into the platform and easy to do. Now I have started to do the same for on-campus students. It is a more nuanced way of having a conversation with them about what I was thinking as I read their work and I am actually able to insert stories, share additional resources, and generally provide more feedback than I would in written form. I receive overwhelming positive comments from students about video feedback.

Faculty who delve into online learning are rewarded by expanded perspectives of student learning. Regardless of the subject matter or disciplines in which faculty teach, this is a conversation that can benefit all faculty.

Depending upon the size of the group, facilitating a conversation on how online teaching practices influence on-campus teaching pedagogy will include electronic polling, think-pair-share, small group discussion/activity, and a gallery walk. Contact information for participants will be collected (from those who are willing to share it) and a compilation of the lessons learned, best practices, or ideas generated through the conversation will be compiled and shared electronically with participants.

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## Conversation: Ethical Challenges in Scholarship of Teaching and Learning

Gil Hersch, Virginia Tech

What it means to conduct research ethically, beyond undergoing an IRB review, is not always clear. We will discuss different ethical challenges that arise in SoTL research, while focusing specifically on the tension that exists between the role of teacher and the role of researcher. One way to try and think of these challenges is to look for inspiration elsewhere, in places where dual roles are also common, such as the researcher-physician. In particular, we will focus on two commonly discussed concerns in bioethics---the need for clinical equipoise and the possibility of a therapeutic misconception. These have analogies when conducting research on students, which we might call educational equipoise and the educational misconception.

When a teacher engages in SoTL by conducting research on her own teaching, some ethical considerations arise. Martin (2013) recommends seeking IRB approval when data on students is collected. Yet compliance with IRB protocols is not the same as discussing the ethical considerations surrounding SoTL research. Others go beyond merely being concerned with IRB approval, and considers ethical issues that might arise specifically in SoTL (Burman & Kleinsasser, 2004; Gurung & Schwartz, 2009; MacLean & Poole, 2010; McKinney, 2007). McKinney focuses on three central ethical issues: the importance of informed consent, the right to privacy and protection from harm. Swenson and McCarthy (2012) and Fenton and Szala-Meneok (2010) express a concern for the effects of the dual role of researcher and teacher that any SoTL researcher plays when discussing unequal benefits for two groups. Similarly, McKinney (2007) mentions the ethical concern with the possibility of withholding some potentially beneficial teaching practices from a subset of students when conducting comparative research designs. Lastly, Pritchard (2002) discusses the educational misconception as analogous to the therapeutic misconception that is discussed extensively in bioethics.

The main goal is to help researchers become more cognizant of the potential ethical challenges they might face while conducting SoTL research. To this end we will discuss a variety of ethical challenges that arise in the SoTL context. The ethical challenges we will discuss are those that participants will raise through mindful reflection on their own experiences, by learning from challenges others have faced, and by considering different hypothetical scenarios that might arise. A secondary goal is to come up with proposals for different possible strategies to deal with the ethical challenges that SoTL researchers might face. These strategies can be conceived on two distinct level: First, at the personal level, researchers might be motivated to act ethically but might lack the tools or awareness to notice ethical challenges. To deal with this, researchers need ways of conceptualize different potential ethical pitfalls of their research. After recognizing these pitfalls, researchers need tools to be able to deal with the challenges they face. Second, at the institutional level, there are ways to help researchers avoid ethical pitfalls, mainly by designing institutional safeguards and incentive structures that reduce the likelihood that researchers will put themselves in ethical compromising situations, and that will help them cope with these when they are in such situations. The proposals that are made during the session can be made publicly available in a venue such as a SoTL journal.

Once teachers decide to evaluate an educational method they consider implementing, they introduce an additional goal to their classroom besides getting students to learn as best they can. This research component in the classroom creates two potentially conflicting goals---teaching one's students to the best of one's ability and figuring out which teaching methods help accomplish this. These two goals parallel the dual goals in clinical research---providing the best treatment possible and figuring out what that treatment is. This duality and the lack of awareness of it are what give rise to the therapeutic misconception in medicine. Often times, patients are not aware, do not understand, or ignore the fact that they are participating in a clinical trial that has an additional and perhaps conflicting goal of figuring out what treatment works best. Instead, patients incorrectly believe that the only goal of their treatment during the clinical trial is to provide them with the best treatment possible. Likewise, students in a classroom in which the teacher is conducting research in order to evaluate what teaching method works best, might be under the misconception that the only goal of the classroom activities is to provide them with the best education the teacher can offer. Thus, the analogous 'educational misconception' can arise.

The discussion will begin with a short literature review, followed by an in-depth discussion of two particular cases of ethical issues---educational equipoise and the educational misconception (10 minutes). The next phase will be to break up into small groups (3-4 participants) and discuss some ethical issues that participants have either

experienced in conducting SoTL research, or else possible ethical issues that they can imagine arising. The idea is to discuss both challenges and ways of coping with those challenges (15 minutes). The next phase is a discussion session with participants raising the most interesting/difficult challenges they came up in the group setting. (15 minutes). Lastly, in the final part we will focus on individual strategies in general to cope with ethical challenges, as well as propose institutional strategies (at the university/journal/grant level) that can be considered helpful for dealing with the most problematic ethical challenges. This will provide us with deliverables, in the form of recommendations at two distinct levels, to tackle the ethical issues that we discuss (10 minutes).

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## **Conversation: Evaluating the impact of the learning environments on “deep learning” among counseling education**

Lynn Paige, Mercer University

The presenter will present a brief presentation that will contextualize the phenomena of “deep learning”. The goals of the presentation will be to define “deep learning”, explore current literature and provide implications for theory and practice. Further, the presenter will facilitate an active participant discussion by using guiding questions, common threads, and reflection, to evaluate effective pedagogical approaches to deep learning.

The idea that students should become better thinkers as they matriculate through college has influenced investigation into collegiate learning outcomes (Nelson Laird, Seifert, Pascarella, Mayhew, & Blaich, 2014), the impact of learning environments on students’ approach to learning (Wilson & Fowler, 2005), and students’ perceptions of the learning (Lizzio, Wilson, & Simons, 2002). As a result, researchers began to explore the idea of “deep” vs “surface” learning (Nelson Laird, et al., 2014; Wilson & Fowler, 2005; Lizzio et al., 2002). Wilson (2005) define “deep learning” as “striving for meaning and understanding.” pg.88 and “surface learning” as “instrumental reproductive and minimalist.” pg. 88. Thus, the approach to learning can be understood as a process which involve the students’ motives, and thoughtful selection of strategies that can be used to solve challenges (Wilson & Fowler, 2005). While considering the aforementioned ideas, research of cross- disciplinary students show that students’ perception of their current learning environment was a stronger predictor of learning outcomes (Lizzio et al., 2002), and that learning designs has a direct influence on the students’ approach to learning (Wilson & Fowler, 2005). In exploring the learning environment and student characteristics(presage), students’ approach to learning (process), and learning outcomes (product), research show a consensus that a deep approach to learning is desirable in higher education (Nelson Laird, et al., 2014; Wilson & Fowler, 2005; Lizzio et al., 2002). Therefore, the purpose of this conversation is to investigate, gain insight, and discuss effective pedagogical approaches to deep learning.

As a result of the conversation, 1. The attendee will understand “deep” vs “surface” learning. 2. Gain knowledge of the students’ perceptions of the learning environment. 3. Gain insight of implications for theory and practice.

The approaches to learning involve a dual dynamic of motive and complementary strategy, which is the process of learning. The learning outcome can be described as the product, and the learning environment and students’ characteristics is the presage (Wilson & Fowler, 2005). Collectively, these ideas raise the questions of:” Does the design of an academic environment influence the approach students’ take to their learning? If academic environments do influence students’ approaches, is the nature and extent of this influence consistent for all students? And How might individual differences play apart?” (Wilson & Fowler, 2005, p. 87). Taken together, the aforementioned ideas and questions, this conversation piece seeks to contribute to the ongoing discussion regarding ways to promote more deep learning among students in higher education.

The presenter will facilitate an active participant discussion by using guiding questions, common threads, and reflection, to evaluate effective pedagogical approaches to deep learning. In addition, the presenter may break the participants into groups and assign a question(s). After a given time, we will gather to discuss ideas and reflective thoughts regarding the question(s) assigned.

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### **Conversation: Facilitating Authentic and Intentional Undergraduate Research**

Jennifer A. Stout, Virginia Commonwealth University; Jake Khoury, Virginia Commonwealth University;  
Christopher N. Jackson, Virginia Commonwealth University

Student engagement in the research process is a concern for many university instructors. Two years ago, we collaborated to design a multi-stage learning tool to help our students develop their skills in information literacy. We aimed to facilitate critical thinking during the research process by encouraging our students to consider the purpose and utility of diverse kinds of sources. For example: “How might longform journalism help me respond to my inquiry question?” “What role should primary sources play in my research project?” And so on. Instead of asking students to focus exclusively on some predetermined and arbitrary number of scholarly sources, we challenged them to conduct authentic research, which involves a flexible, self-directed, and intentional process. We created an “Information Table,” which invites students to ask, “what type of information do I need right now?” This guide does not privilege any one kind of resource over another and provides contexts that help students determine when particular types of information might be most helpful. Then, we presented students with a range of “Research Scenarios” that asked them to identify the kinds of information best suited for each. By asking students to think critically and to defend the types of information they use, we are asking them to think beyond the traditional default of scholarly sources, while preparing them to make independent, intentional, and informed judgments about the utility of their sources. Our conversation will explore a suspicion that many research librarians and composition instructors share--that the research process feels rote and inauthentic to many of our students. We will discuss the potential importance of destabilizing traditional notions of research instruction by encouraging students to determine the number and kinds of sources they need to respond to their questions.

In reflecting on how to foster authentic undergraduate research, we found that our work was operating at a valuable intersection of a couple of important scholarly conversations: the research on learner-centered teaching and active learning, and the reformed understanding of how research should be taught to undergraduates. The problem of how to promote authentic, intentional, and intrinsically motivated learning is a wide-ranging area of research in SOTL (e.g., Zimmerman, 1990; Weimer, 2002, 2013; Blumberg, 2012; Saltman, 2012). At the heart of this research is the question of how to help students become more independent learners. Weimer’s (2013) important work on learner-centered teaching, for example, describes the challenge facing teachers: “[I]nstruction overall continues to be mostly teacher centered, faculty are still making most of the learning decisions for students” (p. viii). She (2002) insists that the “responsibility for learning” must belong to the students themselves (p. 15). This idea is amplified by Gibson (2011), who believes that “[t]he onus is upon the professor to give up control over the parts of the course which can be negotiated” (p. 98). Weimer’s and Gibson’s assertions align with Rossman and Rallis’s (2012) understanding of student inquiry: “inquiry is a planned, purposeful, and systematic process for collecting information, making decisions, and taking actions as a means to contributing to knowledge generally” (p. 45). This shared emphasis on student decision making and agency illustrates the need for instructors and research librarians to offer students opportunities to make judgments and determinations during the research process. Moreover, the revised Framework for Information Literacy for Higher Education adopted by the Association of College and Research Libraries (ACRL) in 2016 emphasizes authentic approaches to finding, evaluating, and ethically using information. The six “threshold concepts” of the Framework include “Authority is Constructed and Contextual,” “Scholarship as Conversation,” and “Research as Inquiry.” These concepts are not new within the profession of teaching librarianship, and in fact reflect decades of emphasis on the library classroom as a place of authentic and active learning (Jacobson & Xu, 2004; Maybee, Doan, & Flierl, 2016; Khailova, 2017) as well as problem-based learning (Carder, Willingham, & Bibb, 2001; Spence, 2004; Roberts, 2017), which seeks to tie information seeking and information literacy to the “real world.” In particular, the Framework’s concept “Authority is Constructed and Contextual” states, “Information resources reflect their creators’ expertise and credibility, and are evaluated based on the information need and the context in which the information will be used.” This important revision is significant to our conversation because it suggests that students must be active and determining agents, thereby echoing Weimar, Gibson, and Rossman and Rallis, among many others. Although Critical Information Literacy, which seeks, among other things, to “problematize [...] traditional criteria [of authority] by evaluating authority through a lens that takes into account socio-political factors that prioritize certain voices over others” (Angell & Tewell, 2017, p. 98), traces its roots back to Freire’s *Pedagogy of the Oppressed* (1968/2010), the rise in interest in decentralizing hierarchies in the library classroom, be they between librarian and student or between peer-reviewed

and non-peer-reviewed sources is a relatively new phenomenon and no doubt received a signal boost once the Framework was officially adopted by ACRL in 2016. Simply put, as Wiggins and McTighe (2005) suggest, instructors and librarians must work to create conditions and contexts within which students can construct understanding for themselves (p. 4).

- To discuss the value--for students, faculty, and teaching librarians alike--of destabilizing traditional notions of and approaches to teaching information literacy. - To consider different methods of promoting student agency during the research process. - To explore ways of facilitating an authentic, real-world approach to finding, evaluating, and using resources based on the demands of our students' topics and projects. - To discuss different ways of fostering student metaliteracy--that is, student reflection on their own research process.

We believe that addressing the practical pedagogical problems we have faced in teaching research can encourage a larger, multidisciplinary conversation about the the objectives of undergraduate research instruction in general, and the outcomes we hope to see in our students' work. We want to discuss the potential deficiency of prescribing certain numbers of sources and emphasizing scholarly sources, which motivated our creation of the Information Table and Research Scenarios learning tool. Additionally, we will explore how reframing the focus of information literacy--moving from finding certain types of sources to considering their utility--may deepen student understanding of the research process.

We plan to initiate our conversation by describing our experiences teaching information literacy--from the perspective of composition instructors and instructional librarians. We will then invite discussion of the efficacy of traditional approaches to teaching information literacy as well as the emerging emphasis on real world research by posing questions to the audience. Questions may include: - How do we promote more intrinsically motivated research? - What kinds of assignments can accomplish this? - What is the purpose of teaching research? - How are we defining our students when we require x number of y kinds of research sources?

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**Conversation: Facilitating Difficult Conversations in the Classroom (Co-sponsored by the Academy of Teaching Excellence [ATE] and the Graduate Academy of Teaching Excellence [GrATE] at Virginia Tech)**  
Anthony Kwame Harrison; Jordan Laney; Erin Lavender-Stott; Darren Maczka; Amy Nelson

In this conversation session we discuss effective ways to facilitate difficult discussions in college classrooms. Through an interactive dialogue led by experienced college professors (members of Academy of Teaching Excellence) and distinguished graduate instructors (Academy of Graduate Teaching Assistant Excellence Fellows), we open space for considering how to position civil discourse as a key learning outcome across all courses, majors, and disciplines at a university. At a time when incivility and disruptive behavior are concerns both inside and outside the academy, we foreground the responsibility of institutions of higher education in cultivating a conscious and cognizant citizenry. Using the notion of classroom climate to highlight instructors' roles in developing and maintaining inclusive and productive spaces, we discuss proactive, in-the-moment, and after-the-fact strategies for nurturing discussions around potentially controversial issues. This includes advocating for the central place of such issues (for example, issues surrounding inequality, identities, etc.) across a range of fields, understanding how both controversy and incivility may look different depending on how one is academically and socially positioned, as well as discussing when and how to convey the ways in which, as instructors, our interests and experiences shape our teaching.

The increasing incivility in sectors of U.S. society has direct ramifications for classroom environments. Founded on notions of mutual respect and prioritizing the common good ahead of self interest (Connelly, 2009), civility, as a fundamental prerequisite to classroom participation, is increasingly under threat (Lewis, 2017; Nolan-Ferrell, 2017). Scholars have attributed the decline in student civility to millennials' self-absorption (Twenge, 2014), short attention spans (Perlmutter, 2004), as well as to a general model of education that encourages students to view themselves as customers (Hogan 2007). Regardless of the source of incivility, there is a pressing need for classroom instructors to be more intentional in cultivating civil discourse—that is, the “ability to have conversation about topics about which we disagree . . . [and] to listen to each other’s perspective” (Choby, 2011)—as both a reactive and proactive means of countering the political apathy, hostility, and disruptive behavior characterizing contemporary society (Leskes, 2013). This involves embracing difficult discussions in the classroom; and recognizing our role, as instructors, in fostering students' appreciation for the value of thoughtfully listening to each other, identifying sources of agreement and difference, and being open to changing one's position on an issue (Grimard, Cossette, & Olivas-Luján, 2017; Leskes, 2013; Ratcliffe, 1999). The climate that instructors create in the classroom has both positive and negative impacts on students' abilities to learn (Pascarella & Terenzini, 1991). Drawing from the research of Desurra and Church (1994), Ambrose et al. (2010) propose a model of classroom climate as a continuum of marginalizing and centralizing tendencies, with explicit(ly marginalizing and/or centralizing) structures and behaviors at the extremes and implicit ones more towards the middle. According to them, positive classroom climates are created through the combination of: (1) being intentional about course content—including readings/media, lectures, and graded assignments; (2) being mindful about class demographics; and (3) facilitating interactional dynamics that motivate students to be accountable to one another as well as to the class as a space for exchanging ideas and learning (Ambrose et al., 2010; Pell & Duffy, 2015). In this conversation session we consider multiple ways of cultivating an inclusive (i.e. centralizing) classroom climate towards the goal providing students across the university with positive experiences in practicing civil discourse (Leskes, 2013; Pell & Duffy, 2015).

This conversation session proposes the following goals and objectives: ? To think broadly about the importance of difficult discussions and civil dialogue in university classroom spaces ? To articulate ways to center difficult discussions and practices of civil discourse within the range of courses taught at a university. ? To highlight proactive strategies for cultivating and managing difficult discussions in our classrooms ? To share best practices for managing disengagement, hostility and/or other unanticipated instances of incivility in the classroom ? To consider how best to balance intellectual honesty (i.e. acknowledging how our experiences and interests shape our teaching) with the importance of creating a non-judgmental environment for differing views to be expressed. ? To initiate discussions about how teachers can play a greater role in promoting civil discourse as a university-wide learning outcome.

The conversation will have both practical and conceptual discussions. The first section will be as a full group covering an overview of conceptual pieces of civil discourse and difficult conversations. The second section of the

conversation will focus on the various disciplinary strategies and topics that arise in our in-person and online classrooms. While controversial and contentious spaces differ between institutions and disciplines, we hope to illuminate methods of implementation directed by the interest and needs of participants.

The session will start with a ten-minute introduction that includes (1) a brief overview of the importance of cultivating productive discussions and civil discourse in academic spaces at this particular historical moment and (2) a short conversation, with each of the panelists, on how difficult discussions manifest in each of their areas of teaching. The remaining forty minutes will be used to have participants bring challenges and ideas to the broader interdisciplinary group to create a living resource. In conclusion, participants and panelists will discuss ways to continue having civility in controversial and difficult conversations within the classroom, including ways to support each other in engaging in these conversations

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## **Conversation: Faculty's Role in Supporting Non-Cognitive Skills Necessary for Successful College Retention**

Roofia Galeshi, Radford University; Darryl Corey, Radford University

Faculty's belief and practices can directly impact college students' engagement and consequently students' retention. While, studies show that students report higher levels of engagement and learning when faculty members use more interpersonal approach to their teaching and pay personal attention to them (Umbach & Wawrzynski, 2005), faculty's belief on the relevancy of non-cognitive skills is one of the least studied topic in the literature. Undergraduate students learning in college is mainly placed on the three key duties of faculty, teaching, research, and, sometimes, faculty directed undergraduate research experience (Fairweather, 2002; Umbach & Wawrzynski, 2005). Unfortunately, much of the discussion around the extent of faculty involvement in any of those areas are beset by personal views and conjecture (Fairweather, 2002). This discussion aims at understanding faculty's personal belief and view in their role increasing students' retention, specifically with attention to the growth of students' non-cognitive skills.

Successful academic performance is a complex task. It requires a multifaceted sets of skills, shaped by a wide-ranging influences both external and intrinsic factors. To be successful in college young adults must not only have academic skills and content knowledge, they must also have skills related to resilience and strategies that are crucial to academic achievement. Unfortunately, such skills are not easily or at all detectable from their academic scores. It is well known that students' performance in secondary schools might not be a predictor of their success in college. Most often these skills are referred to as "non-cognitive" factors "soft skills". Understanding the faculty's role in development of the non-cognitive factors is crucial, the role of the faculty in student retention (Umbach & Wawrzynski, 2005).

The goal of this conversational study is to examine the role faculty play in supporting non-cognitive skills needed for successful transition as well as retention. Our goal is to provide a venue for faculty to share their lived experiences and socialization with college students and their dilemmas and challenges they face in promoting non-cognitive skills.

Faculty have a great influence on students' interaction within the educational context and the effects of these interactions often appears in students' attitudes, motivation, and performance. Non-cognitive skills effect on college success can be extensive since human cognition and behavior are intertwine in many aspect. "Investigations into the neural systems underlying human behavior demonstrate that the mechanisms of emotion and cognition are intertwined from early perception to reasoning." (Phelps, 2006). Research shows that non-cognitive factors continually interact in critical ways to construct knowledge. As the result, changes in cognition do not occur in standalone environment (Farrington et al., 2012).

To facilitate the conversation, we first present the audience with a PowerPoint presentation of the existing research on non-cognitive skills and the traditional description and factors related to non-cognitive skills. After the short presentation we will • What are faculty's perception of non-cognitive skills? What are they? • What is faculty's belief in the link between non-cognitive skills and postsecondary student retention, success, and graduation? • What non-cognitive skills at the secondary level are essential for successful retention? • What supports higher educational intuitions provide for faculty to further develop their skills in promoting non-cognitive skills? • What resources exist in schools to promote the development of non-cognitive skills? • We also would like to delve into their socio-political and emotional dimensions of teaching. Please Note: Prior to the presentation, we will ask the audience if they sign a consent for audiotaping the session. We will then record only those who had signed the consent and ask those who did not to start their discussion with please do not record" so we can delete or pause the audio.

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**Conversation: From high school to college: Designing programs to assist African American college students with transitioning to higher education institutions**

Jada Brooks, Virginia Commonwealth University

Opportunities to pursue higher education have increased for African American college students over the past several decades, however many students continue to face a number of educational issues that can be problematic while transitioning into a collegiate environment. Adapting to college life and getting off to a good start can influence later years of college leading to persistence towards graduation. While some institutions have adopted summer bridge programs or first year experience courses, many universities continue to explore ways to assist students during their transition to college. Some transition programs are specific to first generation students or underrepresented populations, however a “one size fits all” approach may not be helpful to all students participating in transition programs. Cultural, familial, and other differences should be addressed when creating programs for students of various backgrounds. Universities developing transition programs also should consider topics that go beyond the classroom such as building self-esteem, time management skills, mentorship, and financial and study habits. However, there are often gaps in programming and distinguishing what is needed for individual students. Offering programming to assist with course selection, the financial aid process, choosing a major, adapting to college life, preparing for college level writing, and other topics may benefit first year college students, specifically populations that may not have family or friends who can help them navigate the college process. Further, taking an approach that offers seminars or workshops at high schools may benefit potential college students and could further serve as a recruiting method as well. Regardless of what types of programs are offered, evaluation and outcomes should be monitored regularly.

College students typically face several challenges as they transition from high school to college (Schwitzer, Griffin, Ancis, & Thomas, 1999). Challenges include lack of knowledge about the college process, social isolation, and family and economic problems (Arnold, 1993; D’Augelli & Hersberger, 1993), among others. During the first year of college, students are creating the foundation for their later college years with many factors ultimately leading to academic success and persistence (Woosley & Miller, 2009). Because of the importance of college transitions, researchers (Friedman & Marsh, 2009; Fowler & Luna, 2009; Lee & Barnes, 2015; Walpole, Simmerman, Mack, Mills, Scales, & Albano, 2008) have studied and reviewed transition programs and first year experience courses to get a better understanding of what type of programs universities are implementing and the outcomes from those programs. Walpole and colleagues (2008) studied a summer bridge program, focused on academic growth and achievement, designed specifically for underrepresented college students. Results indicated that, students who attended the summer bridge program persisted academically and by the fall of their junior year their retention rates were higher than the retention rate of the control group (Walpole et al., 2008). Institutions have also implemented programs that are included in the first year curriculum. Friedman and Marsh (2009) examined if academic themed and transition themed first year programs to see which approach was most effective. The results indicated both formats of the seminar were effective in helping students transition to college (Friedman & Marsh, 2009). Universities continue to make an effort to attract African American students, however many do not have programs in place to assist students in transitioning and persisting through their college program. Further, research has indicated that family, religious, and cultural variables should be considered with this population (Brooks & Allen, 2014; Brooks, 2015). Many transition programs do not continue beyond the first year and are created for all incoming students, ignoring racial or ethnic background when it comes to the importance of family values, family relationships, and cultural norms (Inkelas, et al., 2007). Thus, it is important to continue to evaluate first year programs.

The goal of the session is to get feedback on summer bridge programs and first year transition programs that are in place at universities. Administrators, faculty, staff, and students are welcome to share ideas about programming for first year students. Feedback does not have to be specific on programs directed at minorities, but transition programs in general. Successes and challenges of programs are welcome. Discussion will center on designing transition programs for African American students and specific needs of this population. Attendees will: 1. Examine the importance of transition programs at the university level for underrepresented populations. 2. Examine the ways that universities can recruit and retain African American students. 3. Discuss the ways transition and first year programs can impact graduation rates and academic persistence among African American college students.

The topic to be discussed will center on the need for transition programs to assist first year African American college students. While there are many populations of students who may benefit from these programs, the conversation will center on African American students as the first author has conducted research on the college experiences of African American students. Further, the numbers of African American students enrolled at universities has not had a significant increase in decades and this population tends to have lower retention rates and graduation rates. Feedback on transition programs from university administrators, faculty, students, and staff is encouraged. Further, strategies for ideas on how to enhance first year and summer bridge programs will be discussed.

This session is learning session for faculty, staff, administrators and students. Information on transition and first year programs and outcomes for those students as well as graduation rates (as compared to other students) will be discussed. The conversation will then focus on experiences and programs implemented by attendees and resources that are available for students such as mentoring, financial assistance, and tutoring.

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**Conversation: Gamification in Higher Education--Surface & Deep, Pros & Cons, Ways & Means**  
Nancy Knapp, University of Georgia

Gamification, "the use of game design elements in nongame contexts" (Deterding, et al., 2011, p.1), is a burgeoning trend in many fields, including higher education. Yet there is little agreement on just which elements are vital to gamification, and gamification in education has also been heavily critiqued as over-emphasizing competition and impairing intrinsic motivation. In this conversation session, we will move beyond the "trendiness" of gamification and the assumption that it is automatically motivating for students (especially those "digital natives" we keep hearing about), by looking at the research, sharing our experiences with gamification of varying degrees and types, and discussing the benefits and costs and cautions involved. We will consider questions about the relationship of gamification to established learning theories and principles (e.g., self-efficacy, mastery learning, reinforcement theory), what aspects (if any) are central to gamification and which are merely peripheral, and the effects of different aspects on different types of students and in diverse academic fields and contexts. Participants new to gamification may discover some relatively simple ways to begin introducing elements of gamification into their own courses, while those with more experience or expertise will be invited to consider the relative importance and effects of surface versus deep gamification for motivation and learning. All participants will be given digital access to an extensive bibliography of research on gamification and actual gamified syllabi and assignments from two gamified graduate level courses, to adapt as they wish to their own work, and invited to participate in and contribute to a community of scholarship and practice on gamification and games in higher education.

Gamification can be defined as "using game based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems" (Kapp, 2012) or more succinctly, as "the use of game design elements in nongame contexts" (Deterding, et al., 2011, p.1). As a term that has come into general use only in the past decade, the influence and spread of gamification has grown rapidly in business, marketing, medicine, and even self-help, but perhaps in no other field as quickly or broadly as in education (Hamuri et al., 2014), with many studies finding that gamification can improve student engagement, motivation, learning, and even classroom behaviors (Gressick & Langston, 2017; Lee & Hammer, 2011). These findings are not surprising, since many aspects of gaming correspond with long-recognized psychological principles related to the positive effects of self-efficacy, student autonomy and choice, mastery learning, and feedback and reinforcement on learning and motivation. Yet there is little agreement on just which elements are vital to gamification: is it surface-level features, like "quests, levels, badges, points, leaderboards" (Hung, p. 57) or perhaps deeper aspects, such as the "freedom to fail, rapid feedback, progression, and storytelling" (Stott & Neustaedter, p.1). Gamification in education has also been heavily critiqued as over-emphasizing competition (Dominguez et al., 2013), impairing intrinsic motivation (Hanus & Fox, 2015), and even contributing to unthinking acceptance of authoritarian norms (Conway, 2014). Gamification may also seem to impose an overwhelming burden on instructors, seeming to require high levels of technical expertise and the complete redesign of a course.

In this session, participants will have the opportunity to 1) access and discuss research both supporting and critiquing gamification in higher education, and exemplifying gamification in a variety of academic fields; 2) consider different aspects of gamification, from badging and gamified language through more structural aspects such as "failing to success" and student choice/exploration, and discuss the advantages and disadvantages that may be offered by each in differing contexts and with differing students; 3) share their own experiences with gamification and responses from students in their academic areas; and 4) discuss and develop ways in which one or more of the strategy(ies) presented or shared might be used in their individual instructional practices. A longer-term goal of the session is to invite participants to collaborate within a community of scholarship and practice on gamification and games in higher education, structured around the phone app Group Me, for quick communication and sharing, and a shared Google Drive folder containing resources and collaborative projects. According to each participant's needs and interests, individuals' levels of collaboration may range from merely drawing upon or contributing to the community's compilation of articles and papers on gamification and games in learning, to sharing gamified assignments and syllabi, to potentially collaborating on joint research projects and publication. In this way, I hope that participants new to gamification will be scaffolding into some relatively simple ways to begin introducing elements of gamification into their own courses, while those with more experience or expertise will be facilitated in

considering the relative importance and effects of surface versus deep gamification for motivation and learning in their fields.

While participants will drive the conversation, bringing and sharing bring their own experiences, ideas, questions and concerns to this session, likely questions for discussion include: - Why think about gamification at all? What are some of the potential benefits research has shown to gamifying courses in higher education? - What are the key or crucial aspects of gamification, and what (if any) are just "window-dressing"? Does "window dressing" still matter? - How are different aspects of gamification related to what we already know about learning in higher education, including the importance of self-efficacy, growth mindset, mastery orientation, feedback and reinforcement, and integration of personal goals and interest in learning? - (How) Can a course be gradually or partially gamified to good effect, or does gamification require a complete makeover? - Do students all respond the same way to various elements of gamification, and if not, what are some of the differences we have seen? - Specifically, what about competition? Does it help or harm learning, and for whom? - What are some of the other downsides of gamification? Is this just a passing fad, or a real way to think about higher education differently?

A main goal of this session is to unpack and demystify the process of gamification, and to consider why and how instructors might want to gamify courses in differing academic contexts, encouraging participants to move beyond the idea that gamification is trendy right now and assumed to be "motivating" for "millennials." At the beginning of the session I will briefly (10 minutes or less) share some of the research on gamification in various areas in higher education and my own experiences gamifying two graduate-level courses: one gradually and partially within a traditional LMS (D2L), and one more completely within the free gamified shell, Classcraft. I will then introduce some of the above questions and call for additional questions/issues from the group. Participants will then vote on which issues they most want to discuss, and depending on the size and sentiment of the group, may discuss a number of issues serially as a whole group or break up into two groups to discuss two different issues for 15 minutes or so, reporting back to the whole group briefly, and then reforming into two more groups to discuss another two issues. A more extensive research summary and description of my two gamified courses will be shared on the handout made available to all participants, as well as information on how to digitally access an extensive bibliography of resources on gamification and games in learning and syllabi and sample gamified assignments from the courses. Finally, if possible, participants will be offered the opportunity to access as virtual learners a copy of the Classcraft-based course that they can actually "play through" as students on their own.

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**Conversation: How might viewing transfer as part of the learning process, rather than an outcome, impact course design?**

Hannah Davis, Virginia Tech

A key goal of higher education is to produce graduates with the ability to apply relevant information to real world problems. There is a reciprocal relationship between course content, cognition (including metacognitive activities), and actions that are required to facilitate transfer. Perceiving of transfer as an end-point in the learning cycle masks the iterative nature of learning. When students are aware of the interactions between knowledge, activities, and the underlying cognitive processes involved in learning, they are better prepared to transfer their learning to a new situation. Likewise, this awareness lends itself to critical reflection about what knowledge was utilized, what action was taken, and the role of cognition in the process. Engaging in this type of critical reflection leads to further synthesis that supports transferability in future situations. Most course design assumes that transfer is an implicit outcome of the learning process. This conversation is geared towards reevaluating the role of transfer: what changes might we make in course design if we view transfer as an explicit part of the learning cycle. Participants will examine perceptions of transfer, as well as the prerequisite metacognitive skills that support it. This conversation allows participants to discuss, debate, and advance an understanding of transfer as part of the learning process rather than an end goal. Discussions such as this serve as stepping stones for developing strategies that incorporate the idea of transfer within course design.

Emphasizing the need to teach creative thinking skills as a foundational step in producing graduates qualified for the workforce presumes that this type of learning is transferable. The ability to learn and apply knowledge in novel settings beyond the classroom is a primary driver of formal education (Klausmeier, 1961). The concept of transferability has been the subject of an enormous amount of empirical and theoretical research over the past 100 years (Barnett & Ceci, 2002; Detterman & Sternberg, 1993). Much of this work has resulted in scholars talking at cross-purposes. They lack a clear operational definition of transfer or a model that accounts for all its relevant dimensions, end-points, and underlying processes (Barnett & Ceci, 2002). (Davis et al., 2003) suggests that transfer is a simple linear process that assumes presenting students with disciplinary knowledge is a sufficient basis for students to take action (e.g. via classroom assignment), thereby allowing them to later transfer that information to other situations. Inherent in this assumption is the idea that students, prompted by repeated exposure to problem sets, implicitly recognize the reasoning skills, cognitive processes, and metacognitive actions that serve as the driving forces that support the transfer of similar problem solving skills in situations outside of the academic setting (Van der Vijver & Hutschemaekers, 1990; Wiley, 1976). The introduction of meaningful activities makes transfer more likely (Bereiter, 1995; Brooks & Dansereau, 1987; Mayer & Wittrock, 1996; Pugh & Bergin, 2006), as does the ability to draw connections between and apply knowledge across a variety of contexts (Perkins & Salomon, 1987; Voss, 1987).

Participants will 1) discuss the concept of transfer, 2) contribute to an understanding of where transfer fits in the learning process, and 3) collaboratively develop ideas for course design that promote transfer as part of the learning process.

We will be discussing existing beliefs about transfer, examining the metacognitive skills attached to transfer, and developing strategies that allow us to promote transfer as part of course design.

Participants will be engaged through an activity, a presentation, and two discussion questions. First, participants will be asked to review a vignette that requires them to consider preconceived notions about transfer. They will then be encouraged to offer and support their opinions regarding the role of transfer in the vignette. The presenter will then lead a discussion about the metacognitive skills attached to transfer and how those skills influence the way transfer is viewed in course design. The participants will engage in brainstorming and breakout groups to develop course design strategies that promote transfer as part of the learning process.

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## **Conversation: How to Best Create and Use Videos to Engage Students and Foster Learning**

Joe Wirgau, Radford University; Jessica Mundy, Radford University

Emerging pedagogical practices, particularly within STEM courses, are moving classrooms towards a more learner-centered, instructional model that has dramatically increased the use and demand for educational videos. Videos, if implemented correctly, can efficiently be used to flip the classroom. These videos serve to deliver content more efficiently, conduct meetings, can be used for safety and other trainings, and provide resources for students who miss class for a variety of legitimate reasons. Instructors can also have students create videos to provide peer instruction and repetition. Videos tend to deliver the same material in a third of the time as face to face delivery. During lecture, time is lost to the speaker observing the audience and trying to not only keep them engaged but be favorably viewed on a personal level (Bergmann & Sams, 2012). The time that is saved can be used on learner-centered, active learning exercises that build transferable skills sought out by employers. Depending on the intended purpose, effective videos can be made in one take using a smart phone in an office or at home with little to no editing. Other purposes may be better served through recording of scripted videos in a production studio and additional editing. Once videos are produced, the question of where to store the video and who has access to them remains. If you can publicly make your videos available, you help create a more transparent classroom where the material is available to tutors, peers, and others trying to help the student. The material will then be available for review in subsequent courses. This session will provide participants the opportunity to identify the main purpose(s) for the potential of adapting video use in their educational practices and provide small and large group discussion, centered on identifying the best style of videos to create or use and how to make those potential videos available.

There are multiple, pedagogical reasons why one might choose to use videos to introduce, supplement, or deliver content. One of these reasons is to create time for active learning as there is a growing body of literature on its positive impacts (Pascarella & Terenzini 2005; Donovan & Bransford 2005). As student retention becomes ever more important to universities, the Business-Higher Education Forum (BHEF) found redesigning introductory courses away from lecture was one of their short list of Highly Effective Undergraduate Interventions to increase the number of successful STEM students (Business-Higher Education Forum, 2013). One common way of redesigning lecture is to “flip” the classroom which has been shown to increase attendance, engagement, and learning (Deslauriers, Schelew & Wieman 2011), as well as, increase grades and attitudes toward learning (McDaniel, Lister, Hanna & Roy 2007). While these represent commendable reasons for flipping a classroom, it does come with challenges. Time, retention, and finding the right technology for student’s needs can prove to be difficult. Creating engaging videos is essential to helping students take accountability for their actions and watch the videos. The Journal of College Science Teaching just published another take on how to make effective videos (Prud’homme-Généreux, Schiller, Wild & Freeman 2017). Velegol, et al used student data to come up with recommendations for video length, use of class time, course organization and student assessment (Velegol, Zappe, & Mahoney 2015). One general piece of advice is to keep videos as concise as possible and have a human face in the video (Smith & McDonald, 2013). Student interest is higher when the narrator is speaking with enthusiasm and not reading from a script (Brame, 2015). Despite the time barriers associated with flipping a classroom, useful videos that are student friendly can be done within a reasonable amount of time and still allow for the development of quality, in-class, active learning.

Goal 1: Participants will be able to explain multiple ways that videos can be used within the educational system.

Goal 2: Participants will be able to compare the relative merits of different quality video production. Goal 3:

Participants will be able to identify the implications of publicly or privately posting video materials. Objective 1:

Participants will discuss the ways they could see using videos. Objective 2: Participants will discuss the benefits and

drawbacks of using high end versus low end video production. Objective 3: Participants will discuss the benefits and drawbacks to making their educational videos open to the public.

We will introduce how we make videos, our experiences, and share technology available for making educational videos. The discussion will then challenge participants to discuss how they can use videos with their work, ranging from complete flipping of the classroom to running efficient meetings. Once potential uses of interest are identified, participants will be prompted to consider what type of video production is the best fit for their intended use. Finally,

the discussion will end with participants discussing if such videos are best kept private for the group using them or made public.

The session will open with a short overview of our experiences in using videos and student feedback from six years of implementation and assessment. The participants in the conversation will then break up into small groups. Topics will be presented to the participants to be discussed among groups. Each small group discussion will last five minutes and then a designated speaker from each small group will present the main ideas and arguments that were discussed. After which, a five-minute open table discussion will be moderated by the presenters. This process will be repeated three times, once for each objective.

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## **Conversation: Implementing a Cohort-Based Program Model to Increase Inclusivity and Promote Diversity in the Digital Classroom**

Kevin Doyle, Virginia Tech; Jenna Haynes, Virginia Tech; Shekila Melchior, University of Tennessee - Chattanooga

Cohort-based educational programs have grown in popularity in multiple different fields within graduate education. Cohort-based programs use intentionality in selecting students for their program, not only for the academic qualities but for their ‘goodness of fit’ with other students in the program. This ‘cohort’ of students then progresses together through the same series of courses with little overlap from other students. When properly implemented, this model provides consistency within the classroom that removes barriers from student participation, allowing them to take more risks and connect with students within their cohort on a more meaningful level and promote a more inclusive practice environment within the classroom with value placed on a diversity of opinions and perspectives. During this conversation session the facilitators will discuss relevant literature surrounding the benefits of using a cohort-based program model, utilizing relevant examples from first-hand experience teaching and participating in a cohort model program. Additionally, the facilitators will discuss some of the risks and concerns when applying a cohort-based program model. Finally, the facilitators will discuss potential struggles and adaptations required for a cohort-based program design to succeed in a future where online and hybrid courses are increasing in popularity.

Cohort-based educational programs have been designed as a means to increase attainment of learning objectives, while preparing students for the rigors of post-graduation professional environments (Beck & Kosnik, 2001; Sathe, 2009). Popular across multiple fields, cohort based educational programs have been shown to create classroom communities in which students are more willing to participate, connect with other classmates, and engage in personal and professional growth (Beck & Kosnik, 2001). Cohort-based programs provide individuals the opportunity to connect and empathize with their peers due to the shared stressors of their studies (Minor, Pipeleton, Stinchfield, Stevens, & Othman, 2012), and the increased exposure to peers allows more opportunity for increased inclusivity and understanding amongst the well-managed cohort (Paisley, Bailey, Hayes, McMahan, & Grimmett, 2010). However, cohort-based programs do come with their own risks and concerns. Cohort-based programs are primarily group based, but there are aspects of educational programs that are inherently individual (i.e. exams, job searches post completion) and can create tension within cohorts (Sathe, 2009). The eventuality of these individual needs can drive a cohort apart without the careful construction and maintenance by faculty (Beck & Kosnik, 2001; Paisley et al., 2010; Sathe, 2009). Of further interest is the application of cohort-based educational models in online courses and programs. A key aspect of a cohort-based educational program is a sense of shared experience and empathy between students. Similar to face-to-face courses, empathy in the online classroom is an important aspect to developing student motivation to learn (Fuller, 2012). Discussion of the use of cohort-based online programs will be a focal point of the presentation, and will include brainstorming about strategies to develop cohort cohesion in the online classroom.

- Understand appropriate cohort-based program development
- Recognize the benefits of cohort-based programs
- Identify concerns in the application of cohort-based programs.
- Recognize the adaptability and applicability of cohort-based programs in an increasingly digital medium.

Initial discussion will focus on current use of cohort-based program models. Understanding the benefits of their use and addressing concerns about managing the model, and limiting the potential negatives of the model. Throughout the initial discussion of the models the facilitator will increase understanding of their current use to those in attendance. The discussion will then segue into a discussion about future applications of the model into online and digital formats, and what effect they can have on the digital classroom and online community.

The authors of this proposal are all skilled facilitators with practical, tangible experience both working in, and participating in cohort-based educational programs. Facilitators will provide a brief lecture (roughly 10 minutes) discussing the nature of a cohort model, and the benefits and risks that accompany them. The facilitators will also discuss ways of promoting inclusivity and diversity within the classroom. Then they will turn to the attendees, utilizing open questions and reflective listening to elicit attendee experiences, interests, and concerns in applying the model. Facilitator’s will draw out themes from the attendees and highlight patterns in the conversation. Further,

Facilitators will lead the discussion to address the potential benefits of applying such models into the online classroom, to create an increased sense of cohesion and connection amongst online class communities.

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## **Conversation: Improving Group Work through a Contemplative Approach**

Sarah Moseley, University of Virginia

Undergraduate students often approach group work with dread: they are concerned about grade accountability, uneven skill level and investment, and distribution of work (Aggarwal & O'Brien, 2008; Hall & Buzwell, 2012). While faculty struggle to re-orient student attitudes and navigate their concerns, student collaboration has become a central part of higher education across disciplines (Burdett, 2007). In this conversation, I suggest that contemplative and expressivist pedagogies offers a way forward, through the integration of mindfulness practices before entering into group work. Such methods position students to a fuller awareness of themselves and also a non-judgmental approach towards others, creating an openness to new experiences (Moore & Malinowski, 2009). After an introduction to the relevant literature, I will lead session participants in a short mindfulness exercise that could be used in across classroom settings as preparation for group work, building on peer response work by Peter Elbow and Patricia Belanoff in the field of writing studies. Participants will reflect on the exercise to transition into discussion, experiencing one way in which a contemplative approach can prepare individuals for group work. Participants will discuss how such exercises might be adapted to their classrooms and to consider the role mindfulness might play in future collaborative activities.

Group work can be very beneficial to students, helping them develop a range of skills that contribute to learning and college success (National Survey of Student Engagement, 2006) and also preparing them for collaboration in the professional world (Caruso & Woolley, 2008). Despite these advantages, students often approach group work with hesitation, anxiety, and negative attitudes (Colbeck, Campbell, & Bjorklund, 2012). Additionally, student expectations of each other and group projects vary by a multitude of factors, including gender, age, and race (Payne & Monk-Turner, 2006). Such anxieties, attitudes, and expectations have proven to be quite a hurdle for instructors to overcome as they incorporate group work into their courses, but research shows that through structure and mentoring in group projects, instructors can shift student perceptions and improve the learning environment (Hillyard, Gillespie, & Littig, 2010). The research, taken cumulatively, suggests that student group work is a valuable classroom activity, particularly when led by a conscientious instructor prepared to create a cooperative atmosphere and navigate varying student perspectives. Contemplative pedagogical methods prepare students to enter into group work in an open-minded manner, which may allow the students to move beyond past experiences or bleak outlooks. Past research on mindfulness exercises in academia show that such activities improve cognitive flexibility (Bush, 2011; Helber, Zook, & Immergut, 2012) and student engagement (Schreiner, 2010), while encouraging self-exploration (Grace, 2011) and enhancing curiosity and observational skills (Haynes, Irvine, & Bridges, 2013). Class work that cultivates a mindful perspective has been shown to increase students' tolerance for ambiguity, which helps them work through complex problems to find creative solutions (Ritchart & Perkins, 2000). Contemplative approaches, including mindfulness activities, position students to adapt to new conditions and diverse ideas with an inquisitive attitude, fostering a rich learning environment where, I argue, students are primed for collaboration.

As a result of this session, participants will:

- Understand literature on group work and contemplative pedagogy
- Identify potential benefits of integrating contemplative approaches into group work across disciplines
- Engage in a mindfulness exercise meant as preparation for group work, which can be applied in the classroom setting as well
- Discuss the adaptation of contemplative pedagogy for group work to their own classes, ideally with participants in related fields

After introducing relevant literature on group work and contemplative pedagogy, participants will be invited to join in a mindfulness exercise based on Peter Elbow's peer responding work. Participants will engage in a two minute "freewrite" – responding to a question through writing continuously for a set period of time, without regard to spelling, grammar, focus, etc. – that they will then share by reading aloud to a small group. The listeners will be guided in mindful listening and responding. The activity will be the starting point for moving into group conversation; this mindfulness exercise will be preparation for group discussion, modeling the application of such an approach for students in a classroom setting. Participants will experience the impact of integrating contemplative pedagogy into group work.

Participants will be guided in group discussion to reflect on the activity, ideally in groups with participants from related fields. Participants then will have the opportunity to evaluate and consider the application of such activities for their classrooms, including ways to adapt the exercise or other mindfulness exercises that might serve their purposes. The session will close with an opportunity for participants to share with the entire room any strategies, challenges, or questions that may have been discussed in their group.

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## **Conversation: Learning in a Community: Anecdotal Evidence of the Effectiveness and Challenges of Learning Communities**

Margaret Pate, Radford University; Shelly Wagers, Radford University; Stephen Owen, Radford University; Courtney Simpkins, Radford University

The purpose of this conversation is to discuss the effectiveness of learning communities at increasing student success and engagement in the classroom. Specifically, this session will focus on connected classes, a form of small scale learning communities that can be implemented without the need for extensive resources. The purpose of the conversation is three-fold. First, it will describe key components to these connected classes (i.e. learning communities). Second, it will identify common challenges and impediments faculty experience when attempting to develop connection across their classes. Third, it will actively engage session participants by challenging them to consider how their own courses could be paired with other courses and how they can design research to assess the effectiveness of these learning communities.

The numbers of “adequately prepared” or “college ready” students graduating from secondary schools is decreasing (Meyers, 2003), with many incoming freshmen lacking critical thinking, problem solving, and communication skills (e.g. Vevea & Harris, 2011). In response, higher education pedagogy is shifting from a traditional teacher-centered approach (lecture style class room with exams) to more student-centered pedagogies (often referred to as High Impact Practice, or HIP), which foster student engagement and High Impact Learning (HIL) (Brownell & Swaner, 2009; Hill, Maier-Katkin, & Kinsley, 2013; Sandeen, 2012). A specific HIP that many colleges have implemented to help with the transition to college are first-year learning communities (Grose-Fifer, Helmer, & Zottoli, 2014). Learning communities have a variety of formats but are broadly defined as programs designed to build a feeling of community and build connections to provide an enriched and integrated learning experience (Tinto, 2003). Students who participate in a learning community report feeling more socially connected and supported by their faculty and peers (Andrade, 2007; Crissman, 2001). Additionally, research indicates that learning communities promote a culture of collaborative learning (Bielaczyc & Collins, 1999; Smith, MacGregor, Matthews & Gabelnick, 2004, Zhao & Kuh, 2004), and possibly help increase student motivation (Stefanou & Salisbury, 2002), both of which may help to increase deeper, more transferrable learning (Fifer et al., 2012). Additionally, a few studies have demonstrated there is a positive relationship between a learning community and a student’s academic success as measured by course content knowledge (Grose-Fifer, 2014; Zhao & Kuh, 2004), but there has been little to no research evaluating the effect of being in a learning community on important academic skills such as written communication, information literacy, and critical thinking (Andrade, 2007).

This conversation session seeks to achieve three goals: G1) Provide faculty the opportunity to discuss the unique challenges of developing connected course learning communities across the university; G2) Lead a discussion on the impact of connected course learning communities on students development of written communication, information literacy, and critical thinking skills; and G3) Lead session participants to generate ideas on how to create course connected learning communities in conjunction with evaluation research to assess their effectiveness on academic skill development. To reach these goals this conversation has the following objectives: 1) Participants will be able to describe elements of course connected learning communities and positive outcomes of a learning community model such as the connected courses (i.e. student achievement in developing written communication, information literacy, critical thinking skills, etc.); 2) Participants will identify common challenges and/impediments to connecting their courses with others across the university; 3) Participants will actively work to create research designs to evaluate the effectiveness of a course connected learning community on student academic skill development.

The topic of this conversation is three fold: 1) To present and discuss the development and implementation of a learning community that connected first-semester criminal justice majors’ introduction to criminal justice course (CRJU 100) to their first-semester CORE writing course (CORE 101) and the research design used to evaluate this pilot project; 2) Lead participants to discuss the unique challenges to developing and implementing these types of learning communities; 3) Lead participants in a discussion about how to design research projects around their efforts to evaluate the impact of course connection on students communication, information literacy, and critical thinking skills. Research indicates that learning communities are effective High Impact Practices (Kuh, 2008), but they can take different forms, ranging from high levels of contact such as sharing the entire first-semester curriculum living together in a dorm to small levels of contact such as the use of a block schedule for students to take two courses together (Tinto, 2003). Although research indicates that learning communities can increase student retention and

engagement, few studies have examined the role these communities play in increased academic achievement, particularly in the areas of communication, information literacy, and critical thinking skills. For the connected courses that we will discuss in this session, the two courses were connected through an overlap in student membership in order to build a sense of community among the first semester freshmen. The courses also overlapped in content, where they do not traditionally do so. For instance, the CORE 101 instructor showed the documentary 13th at the start of the semester and included the criminal justice themes from the documentary in writing projects across the semester; likewise, the CRJU 100 instructor incorporated substantive content from the documentary into class. The goal of the connection was for students to appreciate the links between the criminal justice content and the writing, information literacy, and critical thinking skills they were learning. In this session, we plan to discuss more about the specific details of the course connections, as well as the unique challenges experienced by the instructors of each course.

This session will begin with the presenters conducting a ten-minute overview of the research on learning communities and a description of the learning community described above. Participants will then be divided into groups of 4-6 individuals and directed to accomplish two discussion tasks. The groups will get 5-7 minutes for each task. For the first task, the groups will be instructed to identify a course that you are currently teaching that could benefit from connection to another course across the university and write these two courses down, as well as answer: What are the challenges/impediments you would likely experience when seeking to connect the two courses? What could be done to decrease these challenges? For the second task, the groups will be instructed to brainstorm ways to evaluate the effectiveness of connected courses on student learning outcomes. After the small group discussions, the presenters will lead a large group discussion. Each group will have the opportunity to share (10 minutes total for this part). After the large group discussion, each participant will be instructed to take 3-5 minutes to construct and document their individual 2-3 step implementation action plan for developing connected courses. Finally, the participants will be given 5 minutes to quickly share their action plans with their fellow group members. The session will end with a brief wrap up discussion and question and answer session.

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### **Conversation: Learning through Reflective Writing: Who, How, and Why.**

Fran Cherkis, SUNY Farmingdale State College; Annemarie Rosciano, Stony Brook University

Reflection takes many forms in the classroom, it is an integral and indispensable part of education. Educators often include writing exercises as an active method of learning. The emphasis is usually focused on teaching the student writing skills instead of promoting the development and application of knowledge. Reflective writing is a process where students can examine, explore, and recognize the issue generated by an experience. Through reflective writing, questioning of behaviors and attitudes using multiple perspectives helps the writer reflect in diverse ways to understand the problem. Reflective writing gives the student a method to cognitively and effectively examine the problem. Reflection is especially important because it integrates learning with everyday experiences. The aim of reflective writing is to develop self-awareness, foster thinking and improve students course concepts.

Reflection takes many forms in the classroom, and it is an integral and indispensable part of education. Great teachers reflect on their daily practice and tweak their exemplars, interactions, and attitudes, both at the end of a class and during their work. In the same way, students need to reflect on their actions and their work to build their classroom community and increase knowledge and skills (Kobialka, 2016). The opportunity for writing in the classroom across curriculums is not typical; especially in math and science curriculums (Hebert, Graham & Rigby-Wills, Ganson, 2014). The implementation of writing assignments throughout all academic programs can be the key to assisting students to learn how to turn their thoughts and reflections into concrete well developed meaningful statements. Writing exercises have shown to enhance a student's retention and make connections with the course concepts (Mouser, 2013). Faculty are not classically inspired to include journaling as a writing assignment for students. Faculty consider writing assignments tedious and burdensome. Writing is not viewed as a meaningful method to create a greater understanding to cultivate the education process for the student (Sincoff, 2016). A common connection is needed across all types of curriculum at many different levels to support the implementation of reflective writing as an instructional methodology to shape the learning process. Reflective writing provides an improved understanding of the needs, strengths, and weaknesses of our students assisting faculty to become better teachers. Reflective writing about students' experiences is used to foster critical thinking and reasoning. Reflective writing assignments is an effective method for faculty to mentor students to think critically using a structured process (Kennison, 2012).

1. Explore the purpose of Reflective Writing
2. Describe the concept of Reflective Writing and use in class assignments
3. Recognize the proper questions to ask for Reflective Writing assignment
4. Understand the student benefits of Reflective Writing
5. How Reflective Writing be applied in different curricula

Sharing simple guidelines to follow for reflective writing is significant to aid in the reflective process. There are frameworks to choose from or alternatively one can be created. Consider the following set of questions to include as components used in reflective writing. •Do not overlook the process of reflection, be balanced in thinking, and do not over think the situation. •Include a brief description of the event or situation. •What type(s) of learning domains are apparent in the situation? •Think about the significance of the learning domain (s). •Reflect on the goals and outcomes, were they obtainable? •Do not use reflective writing as a forum for blame or criticisms. •Discuss ideas for improvement, alternative actions, what would be done differently? •Reflective writing is not generalizable, it is an individual reflection. •The author's reflective thoughts cannot be changed, it is their narrative story. •Reflective writing deviates from traditional writing in that, it is more creative, and considers individual insight and evaluation of the author.

1. Assess the attendees for previous Reflective Writing experience
2. Discuss Reflective Writing questions that can be formulated as part of the student assignment for various curricula.
3. Discussion of proposals by attendees of how Reflective Writing can be implemented in their academic courses.
4. Share strategies to assist facilitators to develop Reflective Writing assignments (Handout of stems and guidelines for Reflective Writing assignment).
5. Take home message: Reflective Writing can be adapted by faculty who teach in various curriculum to promote learning, critical thinking, and facilitate faculty understanding of their students. Builds a student-teacher relationship to have a deeper connection and a greater human dimension.

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## **Conversation: Micro-motivations to Successfully Engage Students in a Large Lecture Humanities Course** Greg Tew, Virginia Tech

Engaging students with proven methods – discussions and graded writing assignments – becomes impractical when enrollment rises above 100 students and approaches the impossible when enrollment exceeds 500 students. Yet, there is value in the large format lecture course for efficiently presenting thought-provoking content in humanities courses. Experimentation with ungraded writing assignments in a course that has included between 330 and 650 students has provided clear evidence that micro-bonuses are a powerful motivator for engaging student participation. My experiments have shown that a bonus that ultimately only improves the grade of approximately 2% of students has elicited writing participation rates that far exceed the participation rate when a bonus is not offered. Furthermore, by selecting a small sample of student comments for review in the subsequent lecture, the perception among students is that they are participants in a conversation rather than a simply listening to a lecture.

In their paper titled, “The Hidden Power of Small Rewards: The Effects of Insufficient External Rewards on Autonomous Motivation to Learn,” Garaus, Furtmuller and Guttel, found that small rewards produce disproportionate results in student engagement. My use of small rewards mirrors the findings in their study.

The goal of this proposal is to facilitate a conversation focused on best practices for engaging students in a large lecture course with an example that has worked well as a launch point for a discussion. Moreover, a goal is to share ideas of best features and limits in course management software for engaging students. The limits of course management software is a critical topic since Canvas does not have a viable way to track student participation in the discussion feature as described in the Abstract above and Description below. Therefore, I am currently unable to offer the bonus for written discussion comments as detailed in this proposal. Student participation in the discussion questions have all but stopped using Canvas, and the quality of the course is suffering due to software limits. A desired outcome of the session is establishment of a working group that can propose features to the course management software developers that are proven to tools that support enhanced learning.

For eight years I have used an ungraded writing assignment – a question posted online after each lecture – to encourage students to contemplate and form a response to a question related to the day’s lecture. To simulate a discussion based on the lecture, I select a few comments from the question to guide a review of the key points from the previous lecture at the start of the subsequent lecture. By engaging several student’s thoughts by reading their words from a PowerPoint to the class and commenting on those thoughts, a one sided presentation is perceived as an active discussion rather than as a lecture. This is also a much better use of class time when compared to a typical discussion since the student thoughts selected for “discussion” are selected based on relevance and to include diverse points of view on the topic. Every student has the chance to express their thoughts on the question in writing, and the most useful comments, or most commonly expressed points of view, are presented at the start of class in the review. This way “participation” in the “discussion” is based on the usefulness of the comments and avoids the common problem of discussions being dominated by the most outspoken students. Students benefit from the motivation to research, contemplate and write, and to receive feedback. On the teaching side, the learning objectives are achieved with minimal time – one or two hours – to review the comments and select appropriate samples for the in-class review.

In the 10 minutes allocated to open the discussion, I would give an example of the kind of question I ask at the end of each lecture and show how those responses are incorporated in the subsequent lecture as a review. I would then explain how the bonus points have a minimal impact in grade inflation while significantly boosting participation. I would conclude with my experiences with Canvas and Scholar tools for automating participation in elective learning enhancement activities.

Christian Garaus, Gerhard Furtmüller, and Wolfgang H. Güttel, *The Hidden Power of Small Rewards: The Effects of Insufficient External Rewards on Autonomous Motivation to Learn*. *Academy of Management Learning & Education*, March 2016 15:1 45-59; July 10, 2014.

## **Conversation: Student Engagement Struggles: Index Cards to the Rescue**

Gretchen Thomas, University of Georgia; Dawn Rauscher, Flathead Valley Community College

Supporting student engagement is often a struggle in undergraduate courses that meet just a few times each week. Building community, encouraging discussion, and checking for understanding can be daunting tasks. There are many technology tools that can support these tasks, but in many instances they can also be achieved through some simple tools that most of us can find in bulk in our departmental supply closet. Index cards, post-it notes, even binder clips can come to the rescue of any instructor struggling to engage students. Materials that support engagement in face-to-face and online courses will be discussed. Participants will be encouraged to share additional tools and strategies that have been beneficial in higher education learning environments. Participants will have opportunities to share additional tools and strategies that have been beneficial in their own experiences. Participants will leave this session with a variety of useful tools and strategies to encourage student engagement in various learning settings.

Engaged students are willing participants in “activities and conditions likely to generate high-quality learning” (Coates, 2009). Providing activities and conditions that support community-building and active discussion creates opportunities for students to engage in course materials (Zepke & Leach, 2010). In higher education courses that meet for fewer than three hours each week, creating an active learning environment can be challenging. Fortunately, simple learning activities such as exit tickets, bell ringers, and think-pair-share discussions, along with numerous informal assessment strategies can help students to better engage with course content - allowing them to become a more engaged part of the learning community and more active discussants (Agarwal, Roediger, McDaniel & McDermott, 2017).

The goal of this presentation is to share “analog” tools that support community building, class discussions, and informal assessments - all to enhance student engagement. Identification of inexpensive, easy-to-use tools and strategies that facilitate classroom engagement will be the primary focus of the conversation. Objectives include describing instances where student engagement/community/assessment can be improved, identifying teaching strategies that support student engagement/community/assessment, and utilizing simple tools to increase engagement, build community, and informally assess students.

After participants share instances where they would like to increase student engagement in their own classrooms, the facilitators will share examples of tools they have used to support community building, class discussions, and informal assessments in several of their face-to-face and online classrooms. While multiple tools and strategies will be discussed, facilitators will share examples of how simple tools such as index cards and post-it notes can dramatically change a classroom environment to support student engagement.

This session will begin with a brief introduction including the facilitators’ background, courses taught, and experience with supporting student engagement. Facilitators will share examples of tools and strategies they’ve used to support engagement in face-to-face and online courses they’ve taught. Examples of actual use of tools and sample student work will be shared. For most of the session, facilitators will model their engagement strategies to encourage independent and group participation to identify tools and strategies they are currently using in courses to support community building, class discussion, and informal assessment. Participants will have opportunities to share ideas with other participants and will leave the session with specific engagement strategies to use in their classrooms this semester.

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## **Conversation: Student Perceptions About Learning as Seen Through Small-Group Instructional Diagnoses**

Caryn Neumann, Miami University; Lori L. Parks, Miami University

Do students request the same teaching changes and approve of the same teaching practices in classes, regardless of the discipline? We will discuss the student responses collected in 450 different classes through Small Group Instructional Diagnoses (SGIDs) from 2008 to 2016. The responses indicate what students expect from professors, what they believe will best improve their ability to learn, and what students think hampers their ability to learn. The data comes from a midsize public university in the Midwest that attracts students with varying abilities, so we believe that the results are applicable to all classrooms.

A review of the literature indicates that no other researchers have examined SGIDs, although there has been research into other forms of student evaluation of instruction such as Rate My Professor and end-of-semester student evaluations. The instructor emotion linked to evaluations has undoubtedly made it difficult to collect samples. The large size of this study and the focus of SGIDs on learning rather than instructor rating may make this study particularly valuable.

5. We expect the conversation to focus on best teaching practices and how other instructors have implemented them. Participants will be able to take home a general list of best teaching practices according to university students. Participants will also gain awareness of complaints that other instructors have received, which is of particular value as anecdotal evidence indicates that many instructors think no one else is getting the critical feedback that they receive from students.

We will discuss the student responses collected in 450 different classes through Small Group Instructional Diagnoses (SGIDs) from 2008 to 2016. The responses indicate what students expect from professors, what they believe will best improve their ability to learn, and what students think hampers their ability to learn. The data comes from a midsize public university in the Midwest that attracts students with varying abilities, so we believe that the results are applicable to all classrooms. SGIDs are used as mid-semester formative assessments purely for the instructor's information but, increasingly, also as a university-recognized measure of teaching effectiveness for portfolios. Only an instructor can request a SGID, although supervisors have strongly suggested that faculty make use of the process. Both veteran and novice instructors request SGIDs, with more teaching-oriented instructors tending to make the effort to schedule feedback. A SGID can take 30 minutes to an hour to complete and some instructors are loathe to devote this much time to a non-instructional activity. Therefore, we decided to test the perception of a veteran SGID conductor and head of a SGID team that students make the same comments about teaching in classes that are quite different with respect to content. Such information would have the effect of helping instructors improve their teaching effectiveness without requiring the time commitment of a SGID.

The presentation will begin with a demonstration of how a SGID is conducted. We will then show the results from SGIDs conducted in our classes before discussing the findings from the study about what students believe about university learning.

Finelli, C., Ott, M., Gottfried, A., Hershock, C., O'Neal, C., and Kaplan, M. (2008). Utilizing Instructional Consultations to Enhance the Teaching Performance of Engineering Faculty. *Journal of Engineering Education*, 97 (4), 397-411.

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**Conversation: The sacred cow of the ‘section’ – Deliberating over a core practice in US universities**  
Jenni Case, Virginia Tech

This conversation arises from my experience of starting work in a US university with much of my prior experience in South African, British and Australian universities. In deliberating over possible course structures at the bachelors’ level, I note that reference tends to be made to national standards about the maximum size of ‘sections’ that can be utilized for teaching in particular areas, for example in teaching writing a section size of 20 has been mentioned. We presently have first year engineering courses at Virginia Tech that are delivered exclusively in sections of 30 students, and there is a view that this is a major drawback for attracting students to VT, and a key part of the commitment to enhancing the first year experience. Although in other parts of the globe there are concerns about the challenges of large class teaching, there is not, as far as I can see, the same consensus on the role of small sections especially for particular disciplinary domains. This conversation seeks to surface the nature of this consensus and its underpinning assumptions, and to put these in conversation with perspectives elsewhere in the globe about the relationship between class size and the quality of teaching at university.

A preliminary literature survey does not suggest that there is an explicit literature around the topic – the practice of ‘sectioning’ is well established, and given that the US literature on higher education is fairly independent of those elsewhere, there does not seem to be a global conversation on this topic. The relevant literatures that are related to this conversation are those on large class pedagogies, much of which is presently located in perspectives that value ‘active learning’. A recent special issue in the journal *Higher Education* provides a useful overview of critical perspectives on the topic. Hornsby and Osman (2014) in their editorial start with a position that rejects the simplistic view that large class teaching is inherently problematic. They link the growth of large class teaching contexts to the process of massification, whereby university access has been broadened to a wider proportion of the youth cohort in most parts of the world. They note that traditional lecture styles can be limited in their capacity to shift students from the surface approaches to learning that are prevalent and problematic. At the same time, they note the tremendous potential for the development of teaching approaches that can be effective in large classes. Crucially, they also emphasise the significance of disciplinary context in making evaluations of effective class arrangements. In this session I plan also to draw on recent research I have engaged in around the relationship between teaching and learning in higher education (Case, 2015), and the possibilities it might offer for a critical engagement around assumptions on class size, ‘active learning’ etc. From this work it is clear that there is no simple causal link between ‘teaching’ and ‘learning’, and that the relational impact of teaching can be accomplished in relatively large class sizes.

The goals for the session are as follows: 1. Surface current practices across a range of disciplines around the maximum section size considered appropriate 2. Interrogate the basis for these norms. 3. Develop a view around teaching and learning which can be used to evaluate class size decisions

My departure point for this conversation is a hunch that the practice of ‘section teaching’ in the US university stems from it being a system that massified earlier than others around the globe. The valuing of small sections, linking university teaching more closely to high school teaching, was possible in a context that early on discarded the assumptions around an elite higher education system. My interest in raising this debate is that I think there is value in looking at practices elsewhere in the globe, especially in times of new possibilities around the use of technology in face-to-face teaching, increased pressure for cost efficiencies in higher education, and a need to have a close sense of ‘what matters’ in assuring quality in undergraduate teaching. We cannot move into the future solely on the basis of ‘what worked’ in the past or ‘what we do around here’. In the face of increased demands for accountability, we need to be able to justify the structures we put in place for undergraduate teaching, and their concomitant resource implications. At the same time, I have a personal interest in this session, and that is to gain further insights on the deep grounding of the concepts that underpin the US sense of the university. As noted above, I think it might have important insights for global debates on the topic that have not been shared due to the relative insularity of these literatures.

The session will commence with a focused 5 minute presentation setting up the topic for conversation as per the outline above, with some elaborated reference to the literature. The next portion of the session will solicit the following participant input: 1. Group/plenary discussion around ‘sectioning’ practices in your teaching context (10

minutes) 2. Group/plenary discussing on the underpinning assumptions around class size and teaching quality in higher education (10 minutes) The next part of the session will be a focused 5 minute presentation on a view around teaching and learning, critiquing common sense views on 'active learning'. The remaining 20 minutes of the session will be a plenary discussion responding the challenges that have been presented in this section, attempting to draw together elements of a nuanced view on small class teaching in higher education. I will chair all of these discussions actively to make sure that a range of voices are able to be surfaced. Depending on the size of the audience I will run the earlier discussions in small groups with reporting to the plenary.

Case, J. M. (2015). Emergent interactions: Rethinking the relationship between teaching and learning. *Teaching in Higher Education*, 20(6), 625-635.

Hornsby, D. J., & Osman, R. (2014). Massification in higher education: large classes and student learning. *Higher Education*, 67(6), 711-719.

**Conversation: Using “tiny assignments” in a low stakes environment to promote habits of mind for a discipline using active learning and reflection.**

Anne Marie Zimeri, University of Georgia

Despite the debate on whether homework is beneficial at all grade levels, modern learning often involves students learning course material outside of the classroom in addition to and as a part of the course material. Designing assignments that are of appropriate weight and actively engages students outside of the classroom may be an especially effective way to deliver course material. Solid and Hazardous Waste courses are challenging to learners because the course material is ripe with regulations from the Resource Conservation and Recovery Act and the Code of Federal Regulations. Learning about the minutia that regulates our waste such that the US Government can protect Public Health can easily move away from big picture ideas that relate to individual. Many courses may be riddled with specifics that, when studied, can hinder sight of the big picture. Presented here are low stakes, active assignments that refocus the student on why the course and its content are important. These “tiny assignments” are formulaic in design and can be of interest in a broad range of courses. Each assignment has a mixed method of a task away from the computer and some online reporting. These assignments 1) have the students actively doing something outside of class, and 2) have them document the activity by composing an abstract-length reflection on the activity as it relates to the big picture.

Homework value has been debated as long as it has been instituted in education and is still a bit of a controversy for all grade levels; whether it aids in learning or not. The case for assigning homework has predominated as of late (Marzano & Pickering, 2007a) because it has been found, with only few exceptions that homework leads to a statistically significant improvement in achievement outcomes (Cooper, Robinson, & Patall, 2006). Homework that is structured in such a way that students can accomplish it with little frustration and high success have been shown to be important in homework design (Marzano & Pickering, 2007b). In addition, active learning, whether in a homework assignment or in the classroom has shown improvement in learning (Jensen, Kummer, & Godoy, 2015). Therefore creating an active homework assignment may lead to more engagements and habits of mind in the desired discipline. Assignments can be assessed with brief reporting from the students. And, teaching students about a writing style in their reporting can be of great value to them as they progress through undergraduate and graduate school as well as in their profession. Brief abstract-style writing in a summary in 250 to 500 words is challenging at all levels, especially to those newly learning it, which often happens in graduate school (Krausman, Cox, & Knipps, 2016). By assigning undergraduates a reporting construct that adheres to abstract specifications, students can put into practice the importance of good abstract writing. The improvement of abstract writing is key to science because it is directly related to retrieval performance. The language used in abstracts has long been recognized by editors in retrieval enhancement (Fidel, 1986a), and the retrieval of abstracts is key in disseminating an author’s work (Fidel, 1986b). Here, the abstract-style writing is assignment to undergraduates such that they must write succinctly to report specific items from an out of classroom active learning assignment.

Goals and objectives: 1) To make the case for active homework assignments using a real life example of success a. To evaluate participants’ course material to assist in the creation of active assignment ideas relevant to their subject 2) To analyze the importance of teaching abstract-style writing for students for their futures and for reflection on their assignment a. To discuss platforms for abstract style writing b. To discuss assessment techniques for conventional and structured abstract style writing techniques

Facilitation Techniques 1) A Brief powerpoint illustrating the sample assignment activities, grading schemes, and sample homework from students will be presented 2) Presented also will be data from a survey post-assignment about student impressions of this style of low stakes, active assignments 3) Using a white board or flip chart, participants will discuss ideas for active assignments in their subjects that will connect student to the big picture 4) Platforms for uploading student abstract style reflections will be discussed.

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## **Conversation: Using a Reflection Framework to Facilitate Reflections on Teaching and Learning**

Diana Moss, Appalachian State University; Claudia Bertolone-Smith, University of Nevada, Reno

This presentation offers a look at using a Reflection Framework to improve pre-service/in-service teacher self-reflection and real time collaboration with their mentors. A study conducted with a new seventh grade mathematics teacher partnered with a mathematics educator using a reflection framework will be discussed. The communication, reflection, and feedback was done using a tool created by the authors and set up on Google Docs. The study lasted for several weeks as the classroom teacher struggled with a new way to teach algebra to her students. The reflection questions on the framework were co-created by the teacher and mentor to meet the teachers' need for understanding at the time. It was helpful for the teacher to trace where students had been in their learning and to make decisions about how to foster learning in subsequent lessons. The feedback from the mathematics educator pushed the classroom teacher to reflect more deeply on content and understanding of the students in her class. We believe this process offers an opportunity for teacher educators to connect and guide their education students as they work within classrooms and are developing their own teaching skills. Discussion for further applications and adjustments to the framework will be welcomed.

According to the National Council of Teachers of Mathematics (NCTM, 2000), supporting student learning involves focusing on mathematical thinking and reasoning and this focus begins with writing effective lessons that engage students, promote understanding, and help students understand the content. Curriculum has an influence on student learning based on how the teacher chooses to incorporate the lessons and the opportunities embedded within each lesson. Middle grades students must be “engaged in active, purposeful learning” (National Middle School Association, 2010) and quality teaching should respond to students' developmental needs, paying particular attention to the big mathematical themes, presented as interconnected topics (Ma, 2010). Effective teaching involves supporting student learning by carefully sequencing tasks and addressing misconceptions while paying attention to activities that appeal to young adolescents. To do this, the teacher has to consider multiple kinds of information and make decisions that target students' mathematical developmental needs and optimize student learning of significant mathematical ideas. Gelfuso (2016) found that when reflection is content specific, one needs to have well developed professional understanding of the subject matter to assist the teacher in analyzing and synthesizing teacher moves. Danielson (2009) contends that the greater a teacher's ability to suspend judgment and the broader the repertoire of pedagogical strategies, the more flexible thinking to generate solutions will be. Research (Constantino & De Lorenzo, 2001; Danielson & McGreal, 2000; Glickman, 2002; Lambert, 2003) confirms the benefit of reflective practice to provide professional growth. We developed a reflection framework and tested it in a middle grades classroom to investigate the potential of allowing for deep reflection. Communication between a new middle school mathematics teacher and a mathematics educator from a university was tested over a two-week period using the reflection framework. We investigated if the framework impacted the teacher's ability to reflect and adjust based on student learning in the classroom.

In this conversation session, we will share the Reflection Framework and how a teacher and mathematics educator used to it to facilitate the teacher's reflections on teaching and learning. Our goals for this session include: • Share how the questions for the Reflection Framework were developed and engage in conversation about using other questions in the Framework. • Brainstorm with the attendees how the Framework can be used in school settings, university settings, and across these boundaries. • Conversation regarding co-constructing reflection questions, strategies to support teachers in stretching their reflection, and how this may allow for shifts in teacher efficacy. • Contrast and compare other teacher reflection strategies implemented by participants with their university students.

The Reflection Framework was utilized by both authors as a tool to collect classroom teacher's perceptions of daily lessons in teaching experiments on a larger scale. Both authors noted the importance of the framework in allowing the classroom teacher to reflect deeply on the learning that occurred in the class session that day and the changes that needed to be made for the next day's lesson based on this reflection. An essential piece of this reflection appeared to be the presence of a mentor, or witness to the teacher's reflection. This initiated a trust between teacher and mentor; in which the conversation remained open and positive. We wanted to test the Reflection Framework as a tool for in-service and preservice teachers by setting up a similar situation for a new middle mathematics school teacher and mathematics educator. Using Google Docs, a Reflection Framework was co-created by the mentor and the teacher. The teacher reflected daily on her perception of intended goals and perceived success. The teacher also

indicated the changes she would make in the next day's lesson. The mathematics educator responded by using the comment feature in Google Docs. The flexibility of this tool allowed for a conversation to occur across the country as the teacher was in a western state and the mathematics educator was a university professor in a southern state. The shifts in perspective of the teacher due to the daily reflection and mentorship provided by the university professor were significant. The teacher developed increased flexible thinking to generate solutions to the perceived difficulties with the curriculum and unique needs of middle school students (Danielson, 2009). Using the Reflection Framework in this case, was a successful intervention for a new teacher struggling with her teaching assignment.

The conversation will be facilitated by exploring the context of the current study including the Reflection Framework and examples from the course of reflection which illustrated the effectiveness of the collaboration between teacher and the university professional. An example of the framework will be shared and conversation will be facilitated around the following inquiries: • In what ways does the framework encourage collaboration between student and mentor? • How is the Reflection Framework process different from assignments given to pre-service teachers during classroom practicum? • How can an experience such as this maximize and support pre-service/in-service teacher noticing of classroom environment and impact of learning task design on student understanding? • How might the Reflection Framework be adjusted to create increased communication and high-pressure reflection for our new teachers? Would you use this in your course? We envision participants starting conversations in smaller groups and then sharing observations and ideas with the whole group. All observations will be written down as evidence from this conversation. Essentially, the conversation will help lead us to a new iteration of this idea; further informed by the experience and expertise present in our session.

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### **Conversation: Utilizing Music to Enhance Instruction**

Carrie Sanders Sanders, Virginia Tech; Dannette Gomez Beane, Virginia Tech; Katie Biddle, Virginia Tech

This conversation will provide space for participants to share their experiences utilizing music for instructional purposes. Participants will be asked to describe their own experiences with and interest in incorporating music to promote learning. In addition, participants will be invited to identify their purpose for incorporating music, how they were able to infuse music into the fabric of their instructional practice, and how the use of music impacted student development and engagement. As a group, we will identify and discuss ways in which we may utilize music to facilitate meaningful learning opportunities for our students in various disciplines. Participants will leave with simple, straightforward strategies that they can take with them and implement as appropriate to meet educational needs in their various settings.

Teaching and learning spaces allow for individuals to be engaged in the study of social problems and envision solutions for the campus and broader community (Peterson, 2009). Music is a universally applicable tool for influencing emotions and promoting catharsis, creativity, and communication (Gladding, 2016). By integrating music within the classroom environment, instructors bridge cognitive, affective, and embodied ways of knowing and provide students with opportunities to de-center from cultural assumptions, understand themselves and one another, and connect more meaningfully to learning material (Gladding, 2016; Laird, 2015; Lusebrink, M?rtinson, & Dzilna-Šilova, 2013). Guerra & Pazey (2016) examined the synergistic transformation of values, beliefs, and conceptions as they shared their experiences through a duoethnography. By sharing their stories and reflecting on varying life events they gained understanding how their pasts contributed shaping their assumptions. Music and culture may serve as a positive and powerful medium to transmit and promote social cohesion and understanding (Joseph, 2016). Cruz and Patterson (2005) state, students are provided with opportunities to become less “culture-bound.” According to Joseph (2016), through music, students connected, engaged, and joyously shared music with each other. Strategies for promoting interdisciplinary teaching at the university level include utilizing music. Popular music is shaped by numerous factors including culture, geography, society, politics, media, ethnicity, etc (Sumitra, 2007). There is an abundance of opportunities to utilize music to enhance teaching and learning.

The goals of this session are for participants to recognize the value of utilizing music to facilitate classroom discussions, promote reflective thinking, connect with their own lived experience and the experiences of others. Participants will leave with simple, straightforward strategies that they can take with them and easily implement to meet educational needs in their various settings. The overall goals are supported by coming together to: ? Identify the importance of music in classroom instruction ? Provide examples of utilizing music as an instructional tool ? Discuss ways to integrate music into a variety of content areas

Music can be integrated throughout various programs or individual courses to enhance and apply course content. During this session, the discussion will be framed by the value of incorporating music to promote student learning. The presenters will provide an example of an experience they offered students at the graduate level in addition to other examples in which music is being utilized to facilitate learning. We will discuss how music provides an opportunity for people to understand themselves and others in a variety of contexts. We will explore how music can promote creativity, communication, and influence emotions. Through our discussion we would also like to explore how music can offer a bridge to share our experiences and seek to understand the experiences of others.

The facilitators will begin the session by seeking to learn why participants chose this session. We will ask the participants what brought them to the table in order to provide a baseline for the direction of our discussion. Once we have done a quick check-in with the participants, we will provide a brief overview of the literature and discuss the value of utilizing music for teaching and learning. Next, we will briefly describe how we designed and implemented an activity using music to begin discussing the concept of diversity. Then, we will open it up for the group to share about their own experiences. In order to facilitate the discussion, we will prepare a list of guiding questions to use if needed.

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## **Conversation: Where is my Professor? A Discussion About Social Presence Theory in Online Classes**

Elizabeth Muckensturm, North Carolina State University

**Abstract:** Social Presence Theory has often been used to describe the connection and “realness” of a professor in an online or mediated environment. The current research provides insight into the role of the perceived social presence of the professor and the success of students in online courses. Researchers state “a large number of recent research studies have indicated that social presence is one of the most significant factors in improving learners’ satisfaction, enhancing instructional effectiveness and building a sense of community” (Cui, Lockee, Meng 2012, p.15). After an informal poll of students about issues with online learning, several students indicated they felt no connection with the professor teaching the class. In an effort to “fix” this problem several online tools were discovered that resulted in higher connections with the professor. This conversation will discuss why social presence is important to online learning and student outcomes, ways to increase online presence as well as sharing online tools. Participants will share stories, brainstorm ideas, and collaborate on a list of strategies to create social presence in an online course.

Social Presence Theory was defined by Short, Williams, and Christie in 1976 as “the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships”(p. 65). The idea at that time was that increased presence of a person would increase the perception of that person. This theory has been expanded and built on since its origin to incorporate mediated learning and particularly in online learning. In 1995 Gunawardena further expanded this definition and defined it as “the degree to which a person is perceived as a “real person” in mediated communication” (p. 151). Gunawardena determined from a research survey of a group of 90 students that the role of the moderator was a key factor in creating a sense of community in online classes (Cobb, 2009). Gunawardena & Zittle (1997) also found that greater social presence in a computer-mediated communication (CMC) format lead to greater audience satisfaction. We are currently in what is called by researchers the third period of social presence theory research. Cui, Lockee, Meng (2012, p.15) state “a large number of recent research studies have indicated that social presence is one of the most significant factors in improving learners’ satisfaction, enhancing instructional effectiveness and building a sense of community (Benbunan-Fich and Hiltz 2003; Arbaugh 2005; Richardson and Swan 2003). Aside from the formal research, one can find many white papers and tools online to increase social presence. Both scholars and practitioners realize this concept is important in creating better outcomes and relationships with students, coworkers, and even consumers.

The goal for this session is to discuss what we know about social presence theory (or what we should know) and online learning and to collaboratively discuss practical ways to facilitate a presence in the online classroom. At the conclusion of this presentation participants will be able to: 1. Describe the importance of social presence theory in online learning; 2. Apply the theory from a practical standpoint with activities that promote social presence; 3. Explore the use of applications like Remind to create a sense of immediacy and intimacy necessary for social presence; 4. Collect a list of tools and strategies used to increase social presence; 5. Discuss how social presence is connected with student success and learning outcomes.

Social Presence Theory is based on the idea that a person should be perceived as “real” or “present” in a mediated form of communication. Often times in online courses students lack the “felt” presence of their professor/instructor because of lacked physical face time. However much of the research says that social presence is a significant factor in student success. Therefore, the topic to be discussed is how to create more of a perceived presence in an online format that satisfies the students need to feel a connection to a physical person.

The following strategies will be used to facilitate the conversation: a brief overview of the objectives with a personalized example of online tools that have resulted in higher social presence, followed by a group demonstration of the online tool, followed by brainstorming between participants in pairs, regroup all together to discuss key ideas, ending with a summary of what was learned and a list of strategies we have outlined for creating social presence in an online course during our conversations.

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## **Conversations on the Role of Data in Reclaiming the Large Foundational Engineering Classroom: What do Instructors Want to Know?**

Michelle Soledad, Virginia Tech; Jacob Grohs, Virginia Tech; David Knight; Scott Case; Homero Murzi; Natasha Smith

This session hopes to engage participants in a conversation about data, resources and information that instructors would find helpful when teaching and making pedagogical decisions for large foundational engineering classes. Our goal is to use this conversation session to (1) identify data, resources, and support services that instructors find helpful when teaching and managing large foundational engineering courses and 2) discuss opportunities to leverage existing data to facilitate positive learning environments in large foundational engineering courses.

Fundamental engineering courses provide the foundation upon which advanced discipline-specific courses are built (Chen, Whittinghill, & Kadlowec, 2010). These courses are often taken concurrently as suggested by the curriculum (e.g., Gallogly College of Engineering, 2015) and required of multiple majors. Statics, for example, is required in the Aerospace, Biological Systems, Biomedical, Civil, Construction Management, Environmental, Industrial Operations, Industrial Systems, Materials Science, Mechanical, Mining and Ocean Engineering programs, as well as in Engineering Physics and Engineering Science & Mechanics (“Engineering | Embry-Riddle Aeronautical University,” 2016, “Rose-Hulman - Top Ranked Engineering College,” 2016, “Smith College: Picker Engineering Program,” 2016, University of Michigan, 2015). The reality of increasing student populations has led to institutional decisions aimed at managing operational costs and resources, including teaching some courses in large classes. Fundamental courses that are required of multiple disciplines during a stage in the college journey that is marked with collectively high enrolment rates, such as Statics, are more likely to be organized and taught in large class sizes (Coburn & Treeger, 1997; Seymour & Hewitt, 1997) because they provide an opportunity to maximize faculty contact hours and institutional resources. Large classes, however, have been associated with educational environments that may be detrimental to student learning because of decreased meaningful interaction between instructors and students, among other reasons (Cuseo, 2007). Seymour & Hewitt (1997) also identified the occurrence of large class sizes as one of the reasons why students choose to leave engineering. Instructors, on the other hand, have expressed that it was challenging to create a positive learning experience for students in a large class (Carbone & Greenberg, 1998; Mulryan-Kyne, 2010) and ensure that students have access to individual help (Turns, Yellin, Huang, & Sattler, 2008). It is possible, however, to provide quality learning environments in any setting (Barr & Tagg, 1995). This session hopes to unpack the challenges faced by instructors of large foundational engineering classes and brainstorm on what data, resources, and support services will help faculty make more data-informed decisions about their teaching.

During their participation in this conversation, attendees should be able to:

- Pose and discuss common challenges and barriers to providing positive and effective learning environments in large class sizes
- Brainstorm and identify helpful data, resources and information for managing difficulties encountered in the large class setting, and how this might apply to STEM fields
- Consider available institutional data and how it is being used to inform curricular decisions
- Suggest and consider opportunities to leverage institutional data to overcome barriers to fostering positive learning environments and experiences for students of large foundational engineering courses

The session will start with a short discussion on 1) the “reality” of having large classes and how it deviates from the “ideal” learning environment; 2) the common challenges articulated by instructors in the large foundational engineering class setting; and 3) a specific focus on the existence of institutional data and the opportunity to leverage them to inform decisions regarding teaching and learning. We acknowledge that the framing will be strongly influenced by research and teaching experiences in the engineering context, and we intend to open the discussion to perspectives across multiple domains and disciplines. Our goal is to turn an interdisciplinary conversation into a starting point for exploring commonalities and characteristics of managing large classes that are unique to engineering courses, and use this as basis for identifying useful data to overcome challenges.

The initial discussion described above will provide context for an interactive discussion. The number of attendees will determine the actual structure of the discussion. If there are enough participants, we will start with a small group think-and-share to draw out large class experiences. Reflection prompts will be provided to each group, asking them to recall specific challenging experiences and reflect on what data may have helped them overcome/manage the

difficult situation. We will then facilitate a whole group discussion that will include a sharing and presentation of the stories, ideas and points of reflection generated during the small group discussion.

**Conversations: Confronting the Complexity of the Communication Skills Education Gap: Effectively Identifying, Defining, Prioritizing, and Assessing Amongst A Constellation of Potential Skills and Dimensions**  
Steve Matuszak, Virginia Tech

Over 40 years of research indicates that employers persistently claim business schools are not supplying competent communicators. While it is easy to sense which students are good and bad communicators, increasing their skills is difficult, especially for those with lower competency or higher apprehension levels. Traditional solutions don't address three factors that make this difficult task even more challenging: 1) tremendous variation in incoming students' skill levels; 2) inherent complexity of these skills; and 3) clear target competency levels. This conversation session will introduce the audience participants to the in-depth, year-long analysis Pamplin is conducting to better understand and assess prioritized oral and written communication competency targets, assessment of those prioritized targets, and subsequent development approaches which will likely extend beyond curriculum. Following this introduction to current progress, Steve Matuszak will then open the floor to a guided, interactive conversation concerning best practices and potential innovations concerning oral and written communication competency definitions, dimensions, and domains as well as assessment and education.

Employers place a premium on oral communication skills in recruitment, selection, and promotion decisions (ACNielsen, 1998; Buckley, Peach, & Weitzel, 1989; Crosling & Ward, 2002; Gilsdorf, 1986; Harris, 1994; Henry, 1995; Ingbretsen, 2009; Kane, 1993; Morreale & Pearson, 2008; Pittenger, Miller, & Mott, 2004; Plutsky & Wilson, 2000; Scheetz & Stein-Roggenbuck, 1994; Thompson & Smith, 1992; Wardrope, 2002). Many business school leaders and The Association to Advance Collegiate Schools of Business (AACSB) agree with the need to prepare business students for these oral communication demands in the modern workplace (Association to Advance Collegiate Schools of Business, 2010; English, Manton, Walker, & Brodnax, 2008; Wardrope, 2002). Such inclusion makes curricular and pedagogical sense because communication is not only a specific set of skills, but also a central driver in the development of other critical skills (Hassall, Ottewill, Arquero, & Donoso, 2000). Unfortunately, research indicates industry recruiters continue to be dissatisfied with business education, claiming business schools are not supplying competent communicators (Applebome, 1995; Azevedo, Apfelthaler, & Hurst, 2012; Business World, 2005; Gray, 2010; Job Outlook, 2003, 2011; Kemp, 2009; Porterfield, 2004; Stevens, 2007; Yates, 1983). With employers, business educators, and students agreeing on oral communication skills' importance in the workplace contrasted with employer's dissatisfaction with graduates' oral skills, a gap continues between business education and the marketplace.

The initial goals for the conversation are: 1) To lay the framework that helps participants understand the significant complexity surrounding this issue. 2) To exchange ideas surrounding how to define and prioritize oral and written communication competencies for undergraduates. 3) To identify and consider various potential assessments for identifying gaps between current student competencies and targets. 4) To increase participants' awareness of the practices that Pamplin is currently employing to develop students' competencies as well as exchange best practices from participants' experiences and approaches.

The focus of the conversation will be to exchange perspectives and experiences concerning all the above issues surrounding communication skills education. While developing students' skills is often the focus of such discussions, we want to go further by focusing on how these skills are defined and prioritized, which can lead to more effective assessment, which in turn can lead to more targeted development. Often, assessments are conducted without having an aligned and accurate understanding of the phenomenon or skill in question. In this case, "being a good communicator" involves a constellation of skills, both oral or written. Prioritizing the most important and relevant skills, therefore, is critical for all academic areas because it is likely impossible to address them all. As a result, this conversation will focus on helping participants' gain a richer understanding of not only the constellation of skills involved in effective communication, but also the other less often addressed aspects including the various levels, dimensions, and domains of these skills which comprise the complex landscape in which communication exists (example – communication apprehension).

Steve Matuszak, former executive director of CCTC, a corporate and educational training and development company, will utilize the same techniques he employs at educational and industry conferences, as well as in the classroom now at Virginia Tech. He will present an engaging introduction on the topic which includes lecture and

audience involvement. This will be followed by facilitating a guided and engaging conversation about the topics listed above. This conversation will include open and close-ended guiding questions along with intermittent research and curricular/pedagogical examples from all parties. Steve will focus on acting as a catalyst for exchange as well as each participant giving and receiving relevant information for their specific students' needs (i.e. the communication skills required for their specific industries and fields of study and practice).

## **Keeping It Real ... Normalizing failure and encouraging transparency in the Classroom**

Stefanie Benjamin, University of Tennessee; James Williams, University of Tennessee;

Fear of failure is a common reason people cite for not moving forward in their careers and within their higher education tenure. However, everyone has failed at some moment in their life. But, why are academics, especially faculty, so afraid to talk about their failures with students and colleagues? Within this conversation, we would like to discuss why talking about our failures can feel so foreign to us and how working on being more transparent can improve classroom discussions and potential teacher evaluations. Feminist pedagogy and Critical Race Theory will inform this discussion where we will learn approaches to teaching that are focused on the students and aimed at changing conceptual frameworks which will, hopefully, lead to deeper, more meaningful learning practices. We are encouraging faculty to become comfortable with their emotions, and integrate their lived experiences as ways of producing knowledge. Furthermore, understand the power behind being vulnerable, and more importantly, sharing that vulnerability to help alleviate anxiety and potentially produce alternative ways of learning.

Many students enter higher education with a fear of the unknown, a fear of rejection, or a fear of failing their professors (Cox, 2009). This hidden fear creates hidden walls and educational barriers within our learning environments (Goffman, 1952; Kirp, 2016). A significant number of students drop out of school and more than half of first-time and lower income college students withdraw to increase attrition throughout schools in the U.S. (Cox, 2009). With college dropout rates on an apparent rise, it is important to enhance matriculation and to focus on the retention of college students (Kirp, 2016). Failures, differences, and struggles should be embraced in course classrooms to foster trust and open communication (Clark & Sousa, 2015). This workshop is constructed based on Feminist Pedagogy and Critical Race Theory. A feminist pedagogy framework provides a wide variety of teaching methods and inclusive perspectives in the classroom rather than the normative Eurocentric white male dominance lens (Shackelford, 1992). Professors can use this framework as a power and positional stance to open up and become vulnerable in the classroom. This vulnerability can create a form of liberation among students in academic learning environments, enabling students to open up and keep it real (Jaschik, 2016). Critical Race Theory (CRT) derives from legal scholarship as a critical examination of race and racism from a legal outlook that generates a form of positional power (Bonilla-Silva, 2003). This positional power enables professors of color the ability to acknowledge barriers in their existence and to share from an empathetic or understanding viewpoint with learners (Zalaznick, 2016). Hence, we would like for professors to understand these frameworks and use barriers as relational pieces with their students as lessons learned, mistakes to move on from, and common issues of life to mitigate students' apprehension with the classroom environment.

1. To encourage openness in our online and face-to-face learning environments.
2. To foster collaborative and working relationships with professors and students.
3. To become vulnerable in the classroom and to promote trust.
4. To create an environment where all students feel welcome from judgment.
5. To inspire education that positively impacts their personal and professional lives.
6. To view failure as a marker down the road toward success.
7. To promote transparency.
8. To share tips and tactics that could improve teacher evaluations.
9. To discuss the relevance of Feminist and CRT theories inside the learning environment.
10. To find happiness in and outside the classroom.

The purpose of this conversation is to produce a liberating, fun-filled, and true learning environment; an environment that challenges students and professors to become uncomfortable at times. Quality learning occurs when individuals are able to remove themselves from their comfort zones and to take risks and to venture out into the unknown. We will demonstrate that the unknown is the mystical emergence of learning. The only way to get there is to keep it real and normalize failure; this statement is the crux of our workshop, and it will drive learning to a positive and productive place in today's diverse classroom settings. This workshop will provide tips and strategies that will enable introvert and extrovert instructors to get out of their own heads and swim into their sea of vulnerability. We will use statistics to indicate that students desire to witness the humility, honesty, and transparency of their educators. Remember, the passage from many sages, "the truth shall set you free," so liberation lies in the path of our truths; and we empower others and ourselves by sharing our truths in the classroom. We will share ideas of how to start the class to promote peace, to incite critical and creative thinking, and to invoke classroom discussions. We will also discuss ways to involve introverts, as well as how to foster vulnerability in small and in large classroom learning environments. We will highlight the importance of keeping it real and normalizing familiar

from the inception of the course, ranging from the syllabus and canvas design, the first day interaction, and the commencement of the first day interaction.

The excitement begins here. There will be two professors using content, improvisation, experience, and charisma to interact with participants in this keeping it real and normalizing failure workshop. We will encourage discussion throughout our presentation, and we will set up examples and scenarios that challenge our participants to get involved and to attempt some of our discussed teaching tactics and strategies. We will facilitate discussions with the principles being explored throughout our workshop. This will happen with us walking around and encouraging participants to respond to questions and to constructively add to this workshop. We will also role-play throughout our workshop to model the way and to demonstrate proper keeping it real measures and normalizing failure. We will use techniques that make failure become a normal part of the educational growth process, with the sole purpose of producing an understanding that so-called failure is a necessary evil to positive learning outcomes. We will field questions from participants once we complete our presentation; we will also solicit ideas and beneficial techniques from participants within in the workshop. We will conclude the workshop with our contact information and inspiring words to our fellow mind changers of the future.

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## Marking, Timing and Talk: A Conversation about Techniques to Improve Student Feedback

Eric Rice, Johns Hopkins University

Studies suggest that too often feedback to students is ineffective for a variety of reasons. Other studies suggest that the feedback teachers give to students affects the way students rate professors and therefore the career progress of professors. And yet another set of studies point to major differences in outlook, attention and intention between Millennial/Generation Z, the population now attending college, and previous generations. Yet student feedback practice remains the same. Are there more effective ways of offering student feedback – ways that assure the usefulness of the comments and positively contribute to both the career growth of the faculty member and the satisfaction and content mastery of students? This conversation is grounded in published research on these topics, the experience of the facilitators and the practice of the participants.

Feedback to students traditionally has focused on views of evaluation in terms of Bloom's taxonomy with emphasis on terms such as appraise, defend and justify. Many studies indicate that often feedback is not used for a variety of reasons including that students do not read it (Duncan, 2007) or that comments are ineffectively focused (Hattie and Timperley, 2007). Other studies show that student evaluation of instructors affect career growth of faculty (Flaherty, 2017). Additionally, recent studies and articles document that Millennial/Generation Z differs from previous generations in their expectations and outlook (Bell, 2016) (WMFC, 2016) with greater focus on individuality and different expectations. These outlooks suggest a mismatch that may cause traditional means of commenting on student work ineffective. A two-year experiment by Rice (2017) with four classes of Hopkins students support these and other similar findings. Student comments on different types and styles of delivery suggest that that this instructional process may need to be retooled to better serve the expectations of the new generation.

Objectives for the session include the following: • Identify characteristics of typical student evaluation and of the expectations of millennials/genZ. • Generate a list of difficulties/issues associated with current evaluation practice. • Generate techniques (and examples) useful as strategies to mitigate at least some of the critical issues. Suggest ideas for continuing research into the topic.

The topic is finding and discussing techniques for overcoming the pedagogical difficulties of current student evaluation techniques in light of the expectations of the generation now attending college. Techniques that have proven effective will be discussed, especially as they relate to typical problems that participants note have arisen in their classes.

The plan for the session, including expected interaction patterns follows: • Conceptualize the issues in terms of potential value, prevalence and issues/difficulties of traditional methods of feedback and characteristics of generation "Z". (10 min presentation) • Collect examples using guided discussion of difficulties participants have experienced in their teaching practice and group ideas into categories. For example, there should be difficulties associated with timing for feedback, specificity of comment, and individualized language. (10 min) • Divide participants into work groups around each of the major categories of difficulties and generate techniques that have/might work to mitigate specific issues assigned to that group. (10 min) • Reconvene and harvest ideas from each group for techniques to deal with specific issues. (18 min) • Invite participants to express samples of feedback activity from their classes (as time allows).

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## **Supporting Non-Native English Speaking Students in Reading and Writing Across the Disciplines**

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As the population of Non-Native English Speaking (NNES) students continues to grow, faculty across English-medium institutes of higher education must be prepared to support these students in their academic endeavors. This means we must have an understanding of who these students are, including the benefits and challenges which a larger population of NNES students brings to the classroom, and how assignments, materials, and assessments can be made accessible to all students. This session will address these concerns, with the goal of helping faculty to support NNES students to be successful in a variety of communication tasks across disciplines. College faculty are tasked with guiding students to develop content-specific skills and knowledge, while helping them to develop oral and written communication skills necessary for success in the classroom and the workforce. Students enter the classroom with a wide variety of background knowledge and, for international and immigrant students, a variety of experience with academic work in English. When addressing students' communication skills, instructors fulfill "several different and possibly conflicting roles" and must balance choosing "appropriate language and style to accomplish a range of informational, pedagogic, and interpersonal goals" (Hyland & Hyland, 2006, p.4). Mastering academic writing is a major gatekeeper to success in general education classes; although all students face challenges in learning how to navigate academic writing, students learning to do so in a second language face a different set of challenges when writing in English than native English speakers. One key area where faculty can make a significant difference in the success of NNES students is in the design of course tasks - assignments, materials, and assessments. These tasks can be made more accessible to students, while still evaluating mastery of the concepts and skills necessary to the discipline, without overly simplifying the tasks or weakening the integrity of the course.

The number of international and domestic students whose primary language is not English (Non-Native English Speaking, or NNES) has continued to grow, (Institute of International Education "Open Doors 2016"), and many NNES students who enter are not prepared for college-level academic writing and therefore face difficulties in a system where writing is the "key assessment tool" (Lillis, 2001). There are two broad groups of NNES students: international students, who have come to the United States to pursue a degree program and arrive with a completed high school degree and often some university-level experience as well (Matsuda 2006, Matsuda & Matsuda, 2010), and first- and second-generation immigrant students who have come to the United States seeking a more permanent status here. These 1st and 2nd generation students, or "early-arriving students" (Ferris, 2009), despite attending high school in the United States and having significant fluency in conversational English, are often ill-prepared for college-level work in English (Andrade, 2016a and 2016b; Snow Andrade, Evans, & Hartshorn, 2014; Green & Andrade, 2010). The field of second language acquisition (SLA) offers several important principles which can help faculty to better understand the cognitive processes occurring for NNES in the classroom. Foundational to understanding NNES performance in academic contexts is the difference between BICS, Basic Interpersonal Communication Skills or "social language" and CALP, Cognitive Academic Language Proficiency, or "academic language" (Cummins, 2008). Input is evidence which provides the learner with models of acceptable output in the target language (Gass, 1997). Attention (Logan, 1988) and noticing (Schmidt 1990, 1993a, 1993b, 1994,, 1995) address unconscious and conscious observation of correct linguistic forms, while uptake refers to the learner's responses to corrective feedback provided after an error or in response to a question about a linguistic form (Loewen, 2004; Sheen, 2007). Within the field of composition studies, many scholars, from foundational studies done by, Shaughnessy (1977), Pearl (1979), and Elbow (1973) through the extensive work of recent scholars including Dana Ferris, Paul Matsuda, Maureen Snow Andrade, Ken Hyland, and Fiona Hyland, have identified teacher feedback as one of the most important factors affecting the writing performance of students. This session draws on a foundation of SLA and composition theory to explore how instructors can best support their NNES students.

Participants will explore key characteristics about NNES students and their communication skills - oral and written - in English, and will have the opportunity to compare characteristics of their particular population. Participants will have the opportunity to share issues or concerns they have encountered in their teaching or other work with NNES students, and to offer benefits they see from having them in the classroom. Facilitators will introduce a few key ideas from Second Language Acquisition and Composition theory, and suggest ways in which these ideas can help

faculty to better meet NNES students where they are. Participants will discuss important tasks in their classes which require strong oral and written communication skills, and will be guided to brainstorm how those tasks might be made more accessible to NNES students. Participants will discuss what faculty across a range of disciplines can do to help their students be successful in completing their reading and writing assignments

Knowing the participants bring a wealth of knowledge and experience to the session, we will ask them to reflect on that experience with NNES students and to share some of the benefits and challenges which a larger population of NNES students brings to the classroom. We anticipate that one area of concern will be issues of oral communication within the classroom - participation (or lack of participation) in classroom discussions and possibly also performance in student presentations. Another likely area of concern will be one of academic integrity: plagiarism. To best guide the discussion, we will ask participants to reflect on what they do, for all students, to encourage original thought and creativity. The goal will be to turn the discussion towards how faculty can design assignments and assessments which build in opportunities to develop original thought, rather than focusing on how faculty can punitively address issues of plagiarism. Another area where we will facilitate discussion is task expectations and assessment of task completion. Across disciplines there is a greater focus on developing oral and written communication skills, and often scant agreement in various content areas as to what they are looking for and how to communicate these expectations to students. Our goal with initiating a discussion of tasks would be to elicit description of what successful written and oral tasks look like in different discipline contexts, and to lead participants to reflect on how their assessment of these tasks does or does not allow all students to demonstrate mastery of both content knowledge and communication skills.

We will begin with a brief presentation of (1) key characteristics of NNES learners in American higher education, (2) suggestions from research on what content area faculty can do to work with NNES students, and (3) description of dimensions of student written and oral communication on which faculty could focus. Next, the participants will break into small discipline-specific (if possible) groups to discuss the challenges NNES students face in their classrooms and their own experiences in working with NNES students. As a whole group we will share out ideas from group spokespeople and finish with a whole-group discussion. At the end, facilitators will have a handout/website link prepared with more resources for participants.

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# **PRACTICE SESSIONS**

## **A Magic-based Teaching Method for Facilitating Students' Creative Design Thinking**

Tong Li, University of Georgia; Larry McCalla, University of Georgia

Practitioners and scholars of higher education pedagogy have become increasingly interested in methods to facilitate students' creativity and design thinking. However, it is difficult to find an engaging and effective way to reach this goal. This practice session presents an innovative method based on the principle of magic performance, which enables teachers to facilitate creativity and design thinking in an interactive and engaging way. The presenters will introduce both theoretical and the practical aspects of this method to the audience, based on their two-year experience of using magic as a method to facilitate creativity and design thinking for students in this course.

Magic, as the most universal performing art, is easier to be integrated into other fields (Christopher & Christopher, 2005). Magic performance can also become a potential method worthy of incorporation into class to reduce facilitate creativity and design thinking for the following reasons. First, magic can be used as a schema disruption strategy to elicit cognitive dissonance in individuals' minds. Danek's (2014) study found that magic tricks could disturb people's rational understanding about the possibility of reality. Specifically, in his study, Danek found that observing a magic effect invalidates participants' implicit assumptions about what action causes which outcome. The reality demonstrated by magic is novel, flexible, and different than what they experienced before. When students observe such dissonance, they will reflect the weaknesses of humans' cognitive abilities, such as confirmation bias and stereotypical thinking (O'sterblom, 2015). Students become dissatisfied with the mindset that only focus on the reality and logical reasoning and begin to appreciate a mindset demonstrated by magic that breaks the limitation of conventional thinking and combines reality with imagination. Therefore, Magic can encourage students to change their mindsets to think more flexibly and generate creative ideas. Besides the positive influence that the performance of magic has on students' creativity, another advantage of using magic in the design class is that the principles and theories used by magicians to design magical experiences for the audience can be adopted to explain the core aspect of design thinking –creating a positive experience for the user through innovative design. As suggested by human interaction designer Tognazzini, the development of a magic performance is similar to a user-centered product design process in that both take advantage of a psychological understanding of human nature to create magical experiences (Tognazzini, 1993). Watson and Mougenot also proposed a guideline based on 13 stage magic effects to help designers create products that can bring magical experiences to users (Watson & Mougenot, 2014). Since many researchers have realized the value of magic performance principles in the industrial design field, it is also worthwhile to transform magic into a teaching method for teachers to inspire creative thinking and design thinking of the students.

After attending this presentation, participants will be able to: 1. understand why magic is an effective tool to inspire creative design thinking. 2. explain the process of how magicians develop creative ideas and design their magic performance. 3. use the resources provided by the presenter to integrate magic into their own classes to facilitate students' creativity and design thinking.

One of the presenters (Tong) has been performing magic for 10 years and will perform a magic trick at the beginning of the presentation to engage the participants in participating into the activity. He will then use this trick as a hook to encourage the audience to think about the secret behind it and the creative mindset that magicians have to enable them to create the magic like this. Then the presenter will reveal the general process used by magician to develop creative ideas. After that, the presenter will introduce the magic based teaching method they developed that enable teachers to facilitate students' creativity and design thinking. Participants will also be given opportunities to learn the magic tricks that do not require any sleight of hand, which enables them to apply this method to their own classes. At the end of the presentation, the presenter will share students' responses and suggestions regarding this teaching method.

1. Participants will be encouraged to actively participate in the magic activities to form a deeper understanding of how magic can be used to facilitate creative design thinking from the perspective of students. 2. Participants will get a chance to learn the magic tricks that they can use in their own classes. 3. We will encourage participants to have a discussion about the following questions: • What factors will stop you from using magic in your class? • How to incorporate magic tricks into your own class for the purpose of encouraging creativity and design thinking?

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## **A Meaningful Silence: Get the Most Out of Classroom Discussions**

Paige Horst, Radford University

Learning is a social experience, and students who have the opportunity to discuss, argue, and critique instructor-assigned reading with their peers report that their learning experiences are more meaningful, more memorable, and more connected to their own lives. Generating and supporting classroom discussion, however, can be a tricky and difficult task for instructors. Our classroom communities encompass a wide array of individuals, not all of whom fit comfortably into the “standard model” of college student. The academic success of our students depends on their comprehension of content taught in their classes, yet instructional strategies such as class discussion can present academic barriers to students who might otherwise be motivated and engaged with instructional material. This session will provide instructors with a discussion strategy to engage students and elicit meaningful responses to instructional content, and post-discussion strategies to allow for student reflection and meaning making. Participants will engage in hands-on practice and collaborate with colleagues to discuss methods of incorporating these strategies into their courses.

By the time individuals reach college classrooms, they are experienced students; most have spent a dozen or more years in traditional classroom settings, often with a teacher-led model of classroom discourse. Some students will have experienced well-designed classroom discussion learning activities, but these experiences are a break from tradition, rather than the norm (Doyle, 2011). A majority of college students perceive lecture, rather than discussion, to be instruction (Brookfield & Preskill, 1999). A well-designed discussion, however, is an effective pedagogy and a useful tool for instruction. Engaging college students in effective discussion enhances students’ critical awareness and understanding of concepts and topics considered in class, creates opportunities for students to develop as active, independent learners, and fosters appreciation for a diversity of worldviews and opinions (Brookfield & Preskill, 1999). Well-designed discussions create space and time for students to think independently, process and synthesize information, and offer support for a variety of expressive skills.

This session will provide participants an effective discussion strategy and two post-discussion activities designed to meet the needs of diverse learners, as well as empower and engage students in course content. The presenter will provide a demonstration and practice opportunities for participants to learn the discussion strategy and post-discussion activities in their college courses. Participants will engage in hands-on practice and collaborate with colleagues to discover meaningful ways of incorporating these strategies into their courses. Participants will leave the session with resources for classroom discussion strategies including tips for grading discussions, scaffolding discussions, and using discussion as an assessment tool.

The global economy increasingly necessitates a more and more diversified workforce; in response, colleges and universities grapple with strategies to recruit and retain an increasingly diverse student population. College instructors can, and should, incorporate instructional strategies into their teaching practice that meet the needs of all students in their courses. Classroom discussion can be an effective instructional tool, but failure to address a range of student cognitive endurance, academic preparation, or discourse skills and methods can derail an otherwise well-designed plan for discussion. Students who may be well-trained in the art of listening receptively to a teacher-led lecture may need explicit support and guidance in order to participate effectively in a discussion. Instructors, then, need strategies that invite students into discourse in productive and meaningful ways. Students, in turn, need instructional strategies that create opportunities for discourse grounded in disciplinary and critical literacies. Discussion is most effective when instructors and students clearly understand the purpose of the discussion within the structure of the course, as a pedagogical tool, with explicit and transparent grading strategies, scaffolding, and attention to classroom diversity. The post-discussion activities offered address a common issue with classroom discussion: how do we allow students time to practice or apply the new knowledge gained during discussions?

The presenter will introduce participants to the “silent discussion” activity, during which they will respond in writing to four discussion questions on the topic of diversity in higher education pedagogies. Discussion questions will be posted on posters around the room, and participants may not speak while responding to the questions. Participants will engage in a collaborative, whole group silent discussion, then break out into small groups for a short spoken discussion. Finally, the presenter will offer two post-discussion activities designed to allow practice with and application of discussion topics in their own classrooms.

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## A Tale of Two Courses: Redesign to Promote Student Engagement

Cheryl Farren Tkacs, Pennsylvania State University; MaryAnn Walters, Pennsylvania State University

During the first wave of the online courses, universities pushed traditional courses into cyberspace at alarming rates without the experiential data that typically support such a forceful initiative. Many courses went live with little regard for a sound pedagogical platform. Only in recent history are universities stepping back to take a closer look at the concept of mindful course design and delivery in regard to online redesign and hybrid transformation. Using research and best practices, it is important to focus the course design model on strategies that will ensure positive student experience, satisfaction, and performance as much as possible within online course environment. This presentation provides a look at the transformation of a resident course that was initially delivered through the traditional means - incorporating in-class lectures, discussions, supporting activities, and assessment; the typical teacher-center construct. The objective for the course transformation was to evidence a more student centered approach to the learning process through the implementation of various flipped classroom techniques. These approaches include short lecture videos, check-point assessments, whole-class discussion boards and various other activities, readings, and surveys within an LMS. It was formatted to encourage student engagement, and greater student-teacher communications and feedback. It is helpful if the institution provides an infrastructure to help those who may seek appropriate design methods, tools, and assessment models to successfully deliver the course online. This presentation will discuss the plan, process, approaches, and foundational strategies for transforming a resident course to a hybrid or online platform. This presentation will also discuss the syllabus structure and the importance of providing a student orientation that will help minimize any misconceptions during the independent learning phase of the course. We will also take a first-hand look at the initial data analysis of a course offering across two semesters and their comparative platforms.

1. Attendees will learn about the models of course design, teaching methods, technology tools, learner support, and evaluation for a hybrid/online course. 2. Attendees will discuss a mapping tool that will help focus the design to the course objectives and goals. 3. Attendees will learn about the success factors and innovative practices in distance education and training.

Description of Practice to be Exemplified 1. Redesign philosophies and methods 2. Students engagement and assessment 3. Student preparation for online courses 4. Faculty role in a hybrid/online course

1. Discussion of other methods tried 2. Success stories to share 3. Short activity of first steps in design process

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## **Adaptations and Interpretations of Competency-based Education**

David Sallee, Radford University; Matthew Grimes, Radford University

This practice session will share faculty experience in implementing competency based assessments. There will be three, distinct portions of this session. First, there will be a brief overview of CBE so that all attendees have a shared definition. Second, each presenter will offer one example of how he uses CBE (assessments) in his classroom. An important note: This session is intended to be introductory and conversational; particularly related to the plans, attempts, successes, and learning opportunities in implementing competency based assessment. The presenters are using CBE in several courses and across multiple disciplines. They will share their experiences and lessons learned from implementing this assessment strategy in classrooms, programs, and for accreditation purposes.

Competency-based education (CBE) emerged in the late 1960s, and began to emerge as a valid model for educational practice soon thereafter. Following the work of Bloom's Taxonomy (1956), CBE sought to discover how skills taught in instructional settings would translate into real-world application. While Problem-based learning (PBL) was first introduced as a real-world scenario driven learning method in medical education (Barrows & Tamblyn, 1980), CBE follows much of the same approach, focusing on learning through realistic application (Hmelo-Silver, 2004). The U.S. Department of Education (2014) classified a "competency" as "a combination of skills, abilities, and knowledge needed to perform a specific task in a given context" (p. 5). Using this classification, there are two formats most often used in U. S. higher education: A more traditional, course-based with credit equivalency model—which allows for the necessary competencies (or "skills") to be taught within a classroom, but with assessment at students' own pace—and the direct assessment model—which encourages assessment outside of a traditional classroom setting (McClarty & Gaertner, 2015). At present, CBE has become more and more prevalent across nearly all levels of education, and has been increasingly adapted to meet the needs of higher education students and practitioners in a variety of ways (McClarty & Gaertner, 2015). The critical components of the CBE model are that the model includes a framework with clear competencies to be developed, as well as a method of assessment that can accurately determine whether or not the competencies have been developed (Johnstone & Soares, 2014). The sample activities and approaches in this presentation have both of these components, as well as aspects that make them unique to the instructors and programs for which they have been developed.

Upon completion of the practice session, participants will be able to: Explain competency-based education in simple terms; Describe at least two approaches to competency-based education (assessments); Begin (or at least consider) adapting competency-based assessment methods into their own disciplines and classrooms;

There will be three, distinct portions of this session. First, there will be a brief overview of CBE so that all attendees have a shared definition. Second, each presenter will offer one example of how he uses CBE (assessments) in his classroom. An important note: This session is intended to be introductory and conversational; particularly related to the plans, attempts, successes, and learning opportunities in implementing competency based assessment. The presenters are using CBE in several courses and across multiple disciplines. They will share their experiences\* and lessons learned from implementing this assessment strategy in classrooms, programs, and for accreditation purposes. \*Please note that the presenters do not consider themselves experts in this area. Instead, the presentation is an opportunity to introduce how they have interpreted and adapted CBE! Session participants will be encouraged to share their experiences so that all can grow from our combined strengths. This is not a "how to" session. It is a "what if" session designed to gather strategies from all of our experiences. The planned sequence and timing of the presentation will be as follows: What is CBE? (10 min.) How have two university faculty adapted CBE into their classrooms? (10 min.) What are some "lessons learned" from these adaptations? (5 min.) Facilitated time for sharing experiences with, and understandings of, CBE (10-15 min.) Q&A (5 min.) Additionally, the presenters will attach any relevant documentation to the conference site for participant access.

Both Dr. Grimes and Sallee are new to CBE, and to assessing CBE in the classroom. The intent of this session truly is to present two unique, but relevant adaptations of CBE, AND to engage in collegial discussion to share lessons learned. Drs. Grimes and Sallee are both quite open to both critical feedback and to opportunities for further collaboration in assessment design for CBE.

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## **Aligning information literacy, course instruction and student outcome assessment**

BJ Bryson, James Madison University; David Vess, James Madison University

Forming the bases for lifelong learning, information literacy is central to every discipline (The Association of College and Research Libraries, 2008). Information literacy standards (Association of College and Research Libraries (2000) developed into a six-point framework for higher education as a guiding mechanism of program development (Association of College and Research Libraries, 2015) and generating student preparedness. For this generation of students who receive information constantly through technology with little thought of distinguishing information quality or source, and who may create information without thought of how adding to the information stream impacts others the framework supports student development. Undergraduate competency standards for professional social work establishes the imperative that information literacy be demonstrated by students (CSWE, 2015) as part of program accreditation and renewal. Defining information literacy for measurement and course instruction engages a process of collaboration that creates a feedback loop for student outcome assessment necessary for accreditation/ renewal. Students live in an information-rich, technology-infused world and course instruction occurs within that context. Therefore, instruction should use technology alongside other teaching methods to assist students in developing critical thinking in the face of abundant information availability. With assessment in mind from initial defining and development, mapping measures support evaluation. The final process in the feedback loop is to ensure process and evaluative student assessment measures. This presentation will provide the process of defining information literacy within a curriculum, aligning course instruction where students demonstrate competency through assignments, and methods for measuring student outcomes. Priority is given to the use of technology in this process and assignments embedded in a research course that may be used in other courses. Commonalities across disciplines will be engaged.

The American Library Association (1989) defined information literacy as a set of skills that require individuals to recognize when information is needed, and how to effectively locate and evaluate information when found. Such skills are fundamental for today's students who are bombarded with information from multiple sources, claims of "fake news", unsolicited information, and who routinely avail technology tools for immediate information searching with little discernment for results. Providing information literacy learning activities built on evolving technology assists with preparedness for graduate education and the movement from student to professional when university resources are unavailable. Embedded approaches for assessing information literacy outcomes that describe and measure the value of library science are highly desirable (Pan, Ferrer-Vincent, & Bruehl, 2014) supporting the need for collaboration across disciplines. Central to such efforts are establishing measurable student outcome goals, creating learning activities that demonstrate competence, mapping these to curriculum, and evaluating student outcomes. "Information literacy forms the basis for lifelong learning. It is common to all disciplines, to all learning environments, and to all levels of education" (Association of College and Research Libraries, 2000). The Association of College and Research Libraries (2000) prescribed five standards an information literate person exhibits including determining the nature and extent of information needed, how to access and evaluate information and its sources critically, how to use it effectively and to evaluate information's ethical and legal implications. Students begin to gain knowledge, skills and discernment through mastering content/skills/activities. Students information literacy grows as they "become more self-directed, and assume greater control over their own learning" (The Association of College and Research Libraries, 2008). This is the goal of providing opportunities and course experiences, while recognizing the importance of outcome assessment.

At the end of the presentation participants will be able to: 1. Identify and describe the six-frameworks for information literacy in higher education 2. Explain the outcome assessment mapping process from definition to measures 3. Identify technology tools available for use in learning and evaluating information literacy 4. Identify two other methods of evaluating information literacy without technology

The practice that will be exemplified is three-fold: developing collaborative practice across disciplines, developing course tools for teaching and evaluating information literacy, and mapping a process of evaluation for purposes of outcome assessment.

Participants will be engaged through the use of a Powerpoint presentation, online technology tool demonstration, examples of curriculum mapping for outcome assessment, and demonstration of collaborative practice through open dialog.

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## **An Effective Tool for Shared Experience Approach to Student Learning, Community Building and Classroom Teaching**

Shashank Atre, Robert Morris University; David Belotti, Gateway Technological College; Michael McMahon, Robert Morris University; Paul Gaszak, Robert Morris University;

Inclusion of a Google+ Community as an on-line tool into a class can provide a platform for students to present their individual views and opinions; engage in a shared learning; and to be part of a community. Unlike other shared learning tools like a Discussion Board on Blackboard and Facebook, the Google+ Community provides a visible and more easily accessible means of sharing of views, information, activities, and photographs among the students and faculty. Google Community also provides a tool to conduct polls and surveys, which can be used to initiate discussions and reflections. In a survey about the Google+ Community by various faculty of the College of Liberal Arts, the students indicated that it was very effective in providing students a platform to share information, present their viewpoints, report collaborative projects, and most of all build a network. In particular, adult learners, who are enrolled in evening and weekend classes, found the Google+ Community a place for shared learning and productive interactions with fellow students and faculty.

"Learning communities, as we define them, purposefully restructure the curriculum to link together courses or course work so that students find greater coherence in what they are learning as well as increased intellectual interaction with faculty and fellow students." (Gabelnick, MacGregor, Matthews, & Smith, 1990, p. 5). Effective learning is a community effort that demands constant, real-time dynamic interactions between students and faculty. Google+ Communities in a classroom provide intellectual interaction for effective learning. Social learning theories have established that people learn in social contexts. Lev Vygotsky first stated that we learn best through our interactions and communications with others (Vygotsky 1934/1962). His argument is that for productive and reflective knowledge construction to happen a culture of shared learning has to be in place. Learning Communities like Google+ provide this experience in the classroom. Terry Heick, in his article on "The Characteristics Of A Highly Effective Learning Environment" (2017) opines that the ideas, information and reflections in a learning community acquired from diverse sources are the foundation of knowledge building. When the classroom learning transfers back into the learning community in the form of creative and collaborative solutions and shared knowledge, it results in one highly effective learning environment. The Community learning environment fosters a collaborative learning educational approach to both teaching and student learning over competitive and individualistic efforts. The collaborative learning method encourages and engages a group of learners to share information, solve problems, and build positive diverse relationships (Laal and Ghodsi, 2012). Vescio, Ross & Adams (2007) review research on professional learning communities (PLC's) and their impact on pedagogy and learning. There is a connection, they suggest, between PLC's and student achievement: "[R]eview studies clearly show how this model . . . engages[s] educators . . . and student learning" (89). Zhu & Baylen (2005) submit that learning emerges within the context of "formal and informal" settings (252). The three pedagogical approaches of 'learning communities', 'communities of practice', and 'community learning' provide "unique learning context[s]" (255), with approaches inviting "multiple and relative ways of thinking" (266).

As a result of the session, participants will be able to:

- Create Google+ Community for their respective classes
- Use Google+ Community to share information and to use as an instructional tool
- Use the Google+ Community as an assessment tool as well as a medium to promote build student community

Robert Morris University (RMU) of Illinois has always valued experience-based learning and student engagement through community-based teaching and learning. One of the long-range plans of the University is to become a leader in experienced-based learning by 2020. In order to achieve this goal, the University is making a concentrated effort to adapt its curriculum to offer an experienced-based, student-centric, and community learning environment to its mostly first-generation college students, many of them who are adult students in our Evening Program. The main objective of this effort is to open the diverse body of first-generation college students at RMU to interactive and collaborative student-driven learning by having them take advantage of the technology (Google+ Community) as a site where they can exchange ideas, present information, and share their reflections. The Community provides them the opportunity to interact and engage with their classmates, their faculty, and professionals in real time, without the constraints of a classroom and build and sustain a global shared community. It also frees them to learn on their own and at their own pace, and challenges them to identify, solve problems, and think critically. The Community

provides them their individual voice that they can share with their classmates, collaborate with them on mutually interesting projects, and document their work. Google+ Communities allow them to network and interact with others, display their individuality, and help create new partnerships.

Robert Morris University's faculty has always practiced community-based learning in its courses. In almost all course-evaluation feedbacks from the students they are very explicit in their resistance to the traditional hours-long lectures. They prefer student-driven collaborative hands-on in-class activities and see the role of faculty as guide, mentor, and a teacher when needed. Qualitative analysis of students' responses through College of Liberal Arts Citizenship surveys show that students have responded positively to the use of Google Community (GC) in the classroom. Students feel that the GC adds to the knowledge from traditional lectures in the classroom. It promotes dynamic and continuous learning because it encourages students to interact and share information with classmates outside the classroom. GC helps them to work on their communication skills, both verbal and oral. They have to work together to assess a problem and then come up with solutions—and this approach helps them build a shared-learning community. We will have the participants break in groups and address the following questions regarding Google Communities: Q. Why will it be useful? Or not? Q. How could it be useful? Or not? Q. How could it help you with the class? Or not? Q. Do you see it help you build a Student Community? Or not? Q. Do you see it help you with SHARED LEARNING? Q. What ROLE do you see a Google Community play in your classes? Why or why not?

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**Blowing up Bloom's: Re-examining the Taxonomy's Place in Pedagogy**  
Susan Van Patten, Radford University; Candice Benjes-Small, Radford University

Do you want your students to be engaged learners? Then break out the verb charts and write learning objectives that will move your students beyond those “lower” levels of learning using Bloom’s taxonomy. Students should be synthesizing and evaluating content not just memorizing facts. That is the future of education...or is it? In this interactive and enlightening session, we’ll take a deep dive into Bloom’s, discussing the pitfalls as well as the alternative approaches to meaningful instruction.

Bloom’s taxonomy (Bloom et al., 1956) grew out of the instructional objectives movement in the 1950s (Marzano & Kendall, 2017). The taxonomy inspired Robert Mager’s (1962) *Preparing Instructional Objectives*, which sought to order cognitive tasks hierarchically. Bloom’s taxonomy was eclipsed by Gagne’s (1977) framework when it came to programmed instruction but experienced a resurgence when legislators demanded a measurement of whether increased school funding led to higher student achievement. Bloom’s taxonomy became the primary system for objectives-based evaluation. Statewide testing grew in the 1970s, and by 1985, 32 states had mandated testing; virtually all of the tests used Bloom’s to define levels of skill (Marzano & Kendall, 2017). Since the tests focused on “lower level” skills, critics pointed out a need to address higher level skills in the schools. Numerous educational and psychological groups have developed revisions and alternates to Bloom’s original version but Bloom’s continues to be the standard. Recent critiques have included: 1) an inability to consistently match Bloom’s level to assessments; 2) the pyramid structure and levels implies that learning is linear and hierarchical; and 3) it doesn’t account for the impact of content on cognitive challenges (Sugrue, 2002). Learning is messy. While the appeal of labeling and organizing instruction into various taxonomies is widespread, it does not address the basic question of what does effective instruction look like.

Upon completion of this session, participants will be able to: 1. Summarize the history of Bloom’s taxonomy; 2. Explain the strengths and weaknesses of Bloom’s taxonomy; and 3. Incorporate “thinking routines” into instruction.

We will use various techniques from *Making Thinking Visible* (Ritchhart, Church, & Morrison, 2011) to investigate the strengths and weaknesses of Bloom’s taxonomy. Among the principles are that learning is a consequence of thinking and that good thinking is not only a matter of skills, but also a matter of dispositions.

One of the “thinking techniques” used to introduce and explore new ideas is “3-2-1 Bridge.” At the beginning of the presentation, participants will be asked to think about Bloom’s taxonomy as 3 Words, 2 Questions, and 1 Metaphor/Simile. At the end of the presentation, participants will be asked to reflect again on their understanding as well as identifying a Bridge: How does your new response connect to or shift from your initial response? The “Connect-Extend-Challenge” technique is a final reflection activity geared towards synthesizing and organizing ideas. Here participants will be asked how the information and ideas presented connected to what they already knew; what new ideas did they get that extended or broadened their thinking in new directions; and what challenges or puzzles have come up from the ideas and information presented.

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## **Building Bridges that Can Transport Learners from Simple to Complex Thinking**

Donna Bailey, University of North Carolina - Chapel Hill

One of the goals of effective teaching is to help students learn to develop increasingly “complex and sophisticated” cognitive, affective, and skill structures for comprehending content that they encounter in courses and later in their professional careers. A number of researchers have identified the value of faculty-student interaction as a way to foster this development. While faculty-student interaction is seen as important there is less written about the nature of these interactions. This session will provide an opportunity for participants to explore the systematic use of questions and cases as the basis for faculty and student interaction as well as student to student interaction.

One of the goals of effective teaching is to help students learn to develop increasingly “complex and sophisticated” cognitive, affective, and skill structures for comprehending content that they encounter in courses and later in their professional careers. Faculty-student interaction is one way that these structures develop. Other ways include outside-of-class campus and social experiences. There are two specific ways that faculty can foster interactions between themselves and students in the classroom. Case studies and strategic questions provide ways for a student to interact with faculty directly and indirectly. Additionally, they are strategies that a student can use individually and with other students, such as a study group. Fortunately, the literature abounds with research that indicates the positive value of student-faculty interaction on student learning (Kim & Lundberg, 2016). Their conceptual model was adapted for this session. For one of the best summaries of the value of interaction, Ambrose, Bridges, DiPietro, Lovett, & Norman (2010) described seven instructional principles instructors could use that include faculty-student interaction. Similarly, Chickering and Gamson (1987) began their list of principles of good practice in education with “contact between students and faculty. Other researchers have found that instructor interaction is important for student success in college. Christensen & Menzel (1998) explored the relationship between teacher immediacy behaviors and learning and found a primarily linear relationship with moderate to high levels of immediacy fostering high perceptions of learning. Frieden & Pawelski (2003) explored the value of instructional strategies for affective behaviors, finding that the selected strategies included affective development in students. Finally, Tanner (2013) provides teaching strategies for promoting student engagement and classroom equity, and the best thing is that they are also great examples of student-faculty interaction. There is clear evidence on the value of the interaction. There is less focus on what that interaction should consist of in the classroom and outside of the classroom. This session will provide an opportunity for participants to explore the systematic use of questions and cases as the basis for faculty and student interaction as well as student to student interaction.

At the conclusion of this session, participants will be able to: 1. Describe the importance of faculty-student interaction on the development of student cognitive, affective, and conative skill development, 2. Identify strategies that foster and reinforce faculty-student interaction in proactive ways, and 3. Develop one approach to encouraging and facilitating faculty-student engagement around problems and issues that are relevant to the discipline represented by the course being taught.

Faculty-student interaction is frequently touted as essential to the academic development of students. Kim & Lundberg examined faculty-student interaction to tease out the factors that mediate this activity that underlies the construct. The topics to be discussed include faculty-student interaction, academic self-challenge, cognitive, affective, and conative skill development, classroom engagement, questions, cases, and problems.

The flow of the session will begin with a survey for participants to assess their understanding of the elements that are typically involved in a classroom. Background information will be provided on the model that Kim & Lundberg proposed from their research. Participants will develop a strategy that they might use in their classroom related to question approaches and different types of cases.

## **Building Effectiveness of Student Teams: A Session about Using Team Compacts to Mitigate Typical Difficulties in Practice**

Eric Rice, Johns Hopkins University

A large percentage of professional work is performed in teams and in collaboration with others. Therefore, students should acquire effective teamwork skills during course work in undergraduate and graduate courses, especially those in STEM, engineering and science include. Collaborative projects are a means of instruction, both to gain content specific knowledge and to master skills associated with working on and leading teams. Yet research indicates that a variety of team-management and team participation difficulties arise when using student teams that result in uneven learning outcomes, unsatisfying collaborative experiences and fitful facilitation headaches for the instructor. The aim of this session is to explore a particularly useful technique – team compacts – as a tool to overcome specific difficulties, to facilitate management of student teams and maximize learning outcomes while minimizing instructional hassle. The session is grounded in published research on the topic, the experience of the facilitator and the practice of the participants.

Studies reported in the Harvard Business Review (Cross, et al, 2016) suggest that collaborative work has increased over 50% in the last decade and many professional employees now spend up to three quarters of their day communicating with others. Fortunately, Google with its Project Aristotle, has more firmly cemented the data and best practice about what makes for effective work teams. The most critical factors include psychological safety and setting group norms in advance (Duhigg, 2016). And while student work teams are widely used in postsecondary education, difficulties and issues with their effectiveness remain, often because the lessons of Google have yet to be applied. As a result, students and teachers often are less satisfied with the team modality than other teaching modalities (Shah and Meisenberg, 2012). Students and teachers recognize that individual and team-based difficulties affect success. For example, Buckenmeyer (2000) and Stein (2005-06) suggest that individual issues such as “social loafing” (an individual shirking work and riding the coattails of other group members), differing expectations about the desired or expected grade and inability to manage conflict between members often disrupt student groups, create management problems and lead to student dissatisfaction and diminished learning outcomes. Other researchers have documented that team issues also may lead to ineffectiveness and management difficulties. For example, Caspersz, Skene and Wu (2005) argue that factors such as managing multiple projects each competing for time and attention, the infrequent and sporadic nature of student work group meetings, the lack of clearly assigned roles, and the lack of knowledge of individual skill/knowledge strengths and limitations all contribute to team ineffectiveness. Michaelsen (n.d.) argues that the success of student teams [and conversely, lack thereof sometimes] is due to high levels of group cohesion. Moreover, he argues, “the greatest inhibitors to the development of group cohesiveness are either a previously established relationship between a subset of group members ... or background factors such as nationality, culture or language” (page 2). Recent work supports the incorporation of team contracts/compacts into instruction. For example, Zeynep and colleagues (2013) have demonstrated that using contracts that specify rewards and punishments increase student performance. Rice (2016) in a series of surveys and in-class project experiments with team projects conducted with six classes of Hopkins students support these and other similar findings. For example, over 70 percent of students identify the greatest issues with team projects as disagreement over priorities, distribution of workload and scheduling difficulties. Yet creation of and use of team compacts as a tool has almost eliminated these difficulties.

Objectives for the session include the following: • Identify the reasons for and value of using student teams for instructional purposes. • Discuss the Google findings and their application to student teams. • Generate a list of difficulties/issues associated with using student teams for instructional purposes and group the identified difficulties/issues into conceptual categories. • Demonstrate techniques, especially the team compact, useful as strategies to mitigate most critical issues. Suggest ideas for continuing research into the topic.

The topic is uncovering and demonstrating techniques for establishing psychological safety and group norms to manage the pedagogical difficulties of employing student teams for instructional purposes, especially when used on projects such as design projects, problem-based learning situations, community service projects and case studies. The key purpose is to generate and share techniques for managing inevitable difficulties that arise in team-based approaches. Each participant should leave with several new ideas about how to deploy and manage teams more effectively. We expect to deal with topics such as interaction patterns, scheduling, evaluation/grading, student workloads, conflict management.

The plan for the session, including expected interaction patterns follows: • Conceptualize the issues in terms of potential value, prevalence and issues/difficulties of using teams for instructional purposes, especially in STEM education. Introduce samples and data of ways presenter and Google have used team techniques to address and mitigate various difficulties and the outcomes of efforts. (10 min) • Collect, using guided discussion and small groups, samples of difficulties participants have experienced in their teaching practice and group ideas into categories. For example, there often are difficulties associated with at least interaction patterns; decision making; timing and deadlines; evaluation and grading; cultural diversity; inequitable distribution of workload; individual commitment; and dealing with conflict. (10 min) • Reconvene and harvest ideas from each group for techniques to deal with specific issues. (5 min) • Demonstrate how to employ the team compact as a technique for resolving many of these issues with participants completing a series of exercises that they can employ in their teaching. (20 min) Invite participants to express samples of team activity from their classes (as time allows).

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## **Can You Hear Me Now?: Strategies for Encouraging Communication in the Virtual Classroom**

Brandi Quesenberry, Virginia Tech; Dorothy Conner, Virginia Tech; Claire Boor, Virginia Tech; Zack Sowder, Virginia Tech

With the dramatic increase of students around the world attending classes in the virtual classroom, instructors must adapt, develop their skillset, and move with this burgeoning online culture and resource. In 2013, approximately 45% of college students were enrolled in an online course (Bolkan), and the numbers will continue to rise. But are teachers adequately prepared for the unique challenges within the virtual classroom community and able to create the most effective learning environment for their students? “E-learning is predicated on collaboration and communication and[,] therefore[,] ... participant interactivity must be established to maximize its benefits” (Naidu, ed. 2003). Clear communication is at the core of a successful virtual experience and contributes to higher student involvement and satisfaction from the course. This session will focus on communicating successfully in the virtual classroom, describing common communication problems that instructors face and how to address them, and providing strategies to improve both teacher-to-student and peer-to-peer interactions.

Literature in the Scholarship of Teaching and Learning (SoTL) reveals that departments often struggle to maintain foundational principles and rigor while institutions and students push for more flexibility, heightened access, efficient delivery models, and new technologies. Research shows that feelings of isolation are generally higher in online classes. A phenomenon known as “social presence” reduces the likelihood of such feelings. Social presence is achieved when students recognize that others are involved in the course, and when they appear as real and relatable. This perception of “realness” is created and reinforced when interactions take place within the virtual course (Dixon, 2010). Through the use of meaningful communication-based assignments, students can be actively involved in an online course and build connections with peers and the instructor. The Association of American Colleges and Universities identified group assignments as a high-impact educational practice: “Collaborative learning combines two key goals: learning to work and solve problems in the company of others, and sharpening one’s own understanding by listening seriously to the insights of others, especially those with different backgrounds and life experiences. Approaches range from study groups within a course, to team-based assignments and writing, to cooperative projects and research” (Kuh, 2008). Although online courses can suffer from reduced communication and student engagement, research confirms that, through the use of new technologies, and by incorporating multiple opportunities for teacher-to-student and peer-to-peer interactions, student learning, involvement and satisfaction can remain high in the virtual classroom.

This session will describe problems faculty and students encounter when communicating in online courses and provide strategies and tools to enhance and encourage communication. As stated in “Online Professional and Academic Learning Communities: Faculty Perspectives,” “[i]n online learning environments, a sense of community supports student retention and success at both the course and program levels” (Glazer, Breslin, & Wanstreet, 2013). By providing strategies for more effective communication between faculty and students, we will show how faculty can create a virtual learning experience that encourages a stronger class community through the incorporation of interactive teacher-to-student and peer-to-peer encounters. We will demonstrate how we have successfully used peer evaluations, podcasts, an online conferencing tool that allows multiple people to meet synchronously, to improve the quality of communication in a Virtual Public Speaking course – a type of class that is difficult to facilitate effectively online. Participants will be informed about how to use technology such as Cisco WebEx, and we will provide strategies for incorporating web-based meeting tools into various courses and activities that promote peer-to-peer contact. Information from this session can be adapted for any discipline.

Through past experiences teaching online classes, the panel has identified various techniques to communicate with students and has discovered ways for students to effectively communicate and discuss ideas with each other through synchronous meetings. This synchronous type of communication “provide[s] a familiar instructional environment that mimic many positive features found in the traditional classroom environment” (Tremblay, 2006, p.1). Through new strategies using online conferencing tools such as WebEx, podcasts, interviews, and peer critiques, students have multiple ways to communicate with students and instructors, similar to communication found in a traditional classroom. The panel has used these strategies, especially WebEx, as a platform to communicate directly with students. In the virtual course, students and instructors share information about who they are in the first synchronous meeting using WebEx and a PowerPoint about who they are. This meeting allows students to meet their peers face-

to-face early in the course, building community and setting the stage for future meetings and assignments. Students feel encouraged to ask questions, make comments about classwork, and discuss issues during the online meetings. There are four (4) online meetings throughout the six-week course, and the students are required to meet at their established weekly time. Students make connections and build relationships by meeting with their assigned group of 6-8 peers, providing feedback to their teammates both during the meetings and after through peer evaluations of their work. The use of WebEx in the online classroom increases the quality of communication throughout the course and builds a community among the students, thus reducing feelings of isolation and increasing motivation and connectedness (Preston and Quesenberry, 2014).

It is clear that different issues exist for the virtual classroom compared with the physical classroom; in a Think-Pair-Share activity, audience members may turn to a neighbor and volunteer to describe an experience in the virtual classroom that they struggled to address. Participants might suggest the aspects of the virtual classroom that created this communication breakdown and how it was addressed, then compare with other strategies. After this brief activity, the audience as a whole might provide examples from their individual discussions. Secondly, the panel will address several techniques to address and attempt to solve commonly-experienced communication issues in the virtual classroom, and participants are encouraged to affirm, question, and springboard off of these suggestions as an interactive teaching experience, sharing ideas and establishing foundational procedures to preemptively avoid and then later potentially confront the most common communication difficulties in the virtual classroom.

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## **Color-Coding, Forced Decision-Making, and Structure without Structure: Strategies to Encourage Self-Reflective Undergraduate Writing**

Jeffrey Murray, Virginia Commonwealth University; Michael Abelson, Virginia Commonwealth University

This practice session will discuss the use of color-coded composition assignments and classroom activities as a highly effective and easily implementable pedagogical strategy that can increase students' self-reflection on and self-editing of their writing. Following a review of previous work with color-coding, this session will discuss two extensions: pairing color-coding with "forced decision making" and implementing color-coding in a research-writing course to promote purposeful, structured writing without imposition of rigid format. The session will include a hands-on illustration of the technique and will allow time for participants to both share their own uses of color-coding and/or brainstorm potential applications to their own course assignments and classroom activities.

While the general subject of meta-cognition has of course received considerable attention in the scholarship of teaching and learning – see Costa (2001), Kahneman (2011), Perkins (2001), and Shaughnessy, Veenman & Kleyn-Kennedy (2008), for example – the use of color-coding in course assignments and classroom activities, specifically as a strategy to foster students' meta-cognition about composition and/or promote students' self-editing of their writing, has been the subject of little theoretical discussion in higher education literature – though our own anecdotal evidence suggests that many instructors use some type of color-coding or structured writing with similar outcomes in their classrooms. This session builds on the work of Murray (2014) as a general foundation on the metacognitive benefits of having students color-code assignments. The first extension of the use of color-coding to be discussed in this session pairs it with the notion of "forced decision making," as discussed by Francini (2014) as a way to promote critical thinking and enhance student engagement. The second extension of the use of color-coding is to provide students with structural guidance without narrow determination of the content of the writing. Used in this way, color-coding becomes a tool for generation of writing and subsequent revision, i.e. a model, for composition and tool for self-identification of areas of the writing in need of focus and elaboration.

Following this session, participants will be able to: 1. Understand how color-coding can be used as a self-reflective / meta-cognitive tool across a variety of (written) assignments and courses; 2. Consider the advantages and possibilities of pairing color-coding with other pedagogical strategies, such as forced decision-making; 3. Engage in preliminary reflection / discussion on how this strategy might be incorporated into their own existing classroom activities or course assignments.

This practice session will share a very simple but highly effective technique for achieving both better written products and a heightened degree of meta-cognition in the undergraduate classroom: the strategic use of color-coded composition assignments and activities. The session will begin with a concrete illustration of the technique and a brief discussion of the theoretical foundations for its utility as a meta-cognitive tool and its primary benefit and limitation as a learning tool. In brief, the underlying assumption is that meta-cognition can be triggered by the superimposition of one conceptual apparatus upon another, such as using a theory of audience to help students think more deeply about various features of an effective introduction, for example. The use of color-coding, by contrast, allows the student to superimpose an already-familiar conceptual apparatus, that of colors, upon course content, such as building in conceptions of argument development within paragraph structure. The primary benefit of this approach is that it compels students to think and reflect upon the principal course content without introducing yet more course content (i.e., a new conceptual apparatus, such as a theory of audience). This allows students to focus their attention and reflect upon the primary task and objective of an assignment. Following this general overview of the strategy, the session will then offer two specific extensions of this general strategy – the first of which pairs it with the strategy of "forced decision-making" in which students are tasked with color-coding every word of a text; the second of which outlines color-coding as a tool of composition and revision, focusing on paragraph structure. One of the advantages of this approach is that encourages students to understand and develop the rhetorical purposes of every sentence they write. Both extensions of the general strategy share the primary goal of empowering students to be more self-reflective about their own writing and more cognizant of the intentional communicative and rhetorical purpose of every word and sentence that they compose.

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## Cooperative Learning Models: Moving Beyond Group Work at the University Level

Susan Wagner, Lincoln Memorial University

Instructors in content area specialties outside colleges of education can look to pedagogical methodologies to facilitate student engagement and learning in higher education. The cooperative learning model is one recommended methodology in designing instruction that targets higher order thinking, student engagement with content and academic achievement. However, differentiating between group work assignments and cooperative learning models is crucial to successful implementation. In college courses where a lecture model is the default instructional method, the move to cooperative learning can be problematic. Technology designs that support projected PowerPoint presentations keep instructors at the center of delivery and enforce the lecture methodology. Often within the lecture model, small-group collaborative work is assigned for completion outside of class. Group assignments leave accountability challenging when work is completed by only one or two students, or other students withdraw from group participation. By examining the implementation of the cooperative learning model, differentiating between “group work” and cooperative learning models, and the implications for the university classrooms, instructors will be able to move from the lecture model to enable higher engagement by incorporating the cooperative learning instruction model. With a sound research base, the cooperative learning model can engage students and increase academic achievement. Through discussion and reflection, college educators across can initiate steps for student engagement through cooperative learning models.

Cooperative learning is a pedagogical methodology that can leverage student engagement and learning in higher education. For the college instructor, designing instruction for meaningful engagement with content and peers will increase academic achievement. By transitioning from the “sage-on-the-stage” lecture methodology, to “guide-on-the-side” facilitation of cooperative learning, instructors move students from surfing the net and texting beneath the table to participating in interactive small group discussions. Cooperative learning models defined by Estes and Mintz (2015) provide a clear delineation from group work and enhance learning and understanding to the classroom. Cooperative Learning provides support for students in building crucial social skills and experiences for their future career demands (D. W. Johnson & R. T. Johnson, 1993; D. W. Johnson & F. P. Johnson, 2002; D. W. Johnson, R. T. Johnson, & K. Smith, 2007; (D. W. Johnson & R. T. Johnson, 1993). In college courses where the lecture model can be an easy default, the move to cooperative learning can be problematic. Reliance on PowerPoint presentations keeps the instructor front and center. Oftentimes, ill-defined group work, when assigned, is completed by one or two students. Other students retract from the group, and group or individual accountability is challenging (Ventimiglia, 1993). By examining the implementation of cooperative learning model and the implications for the university classroom, instructors will be able to move from the lecture model to enable higher engagement by incorporating the cooperative learning instruction model. D. W. Johnson & R. T. Johnson (1993) revealed five reasons for implementing cooperative learning models in higher education: implications for instruction and learning outcomes, unique learning situations within cooperative learning groups that cannot be replicated for individual learning; a large history of research showing results when implemented; identification of necessary components to make it work; and significant results and findings from studies supporting cooperative learning. With research at its base, the cooperative learning model is one way to engage students and affect academic achievement. Through reflection and examination of their own instructional practice and craft, college educators across all content areas can plan for and begin to make those instructional moves.

After this session, the participants will be able to:

- Recognize pitfalls of lecture-only course design
- Distinguish between models of instruction and
- Discern benefits of moving from lecture to interactive cooperative learning model
- Identify the five areas which distinguish the cooperative learning model from group work
- Recognize challenges in student groups and ideas for improving group performance

Engage students by transitioning from lecture-delivery methods to utilizing a true cooperative learning model. In this session, educators will explore the move from lecture and student group work to a clearly defined cooperative learning model and the effect on student learning and engagement. Cooperative learning instructional models are one of the most successful methods of instruction, which not only deliver content but boost student engagement as well as aiding in the development of social skills valued in today’s working and collegial environments. Reflect

upon teaching strategies you already use and the types of assignments you have already implemented which can utilize this methodology in your courses.

Participants will follow a Jigsaw cooperative learning model to review literature and discuss their own pedagogical methods in designing cooperative learning activities. Discussions will examine current practice and best practices and ways to transition from lecture to cooperative learning models. Interactive technology will be utilized to pre-assess participants instructional methodologies and review concepts learned from the session.

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## Critically Engaging the Future with Scenario Analysis and Design Fiction

Emily York, James Madison University

With an increasing tempo for social, political, economic, technological, and environmental change, college graduates as young professionals and as citizens need critical skills for imagining and analyzing potential futures. Even as popular culture presents numerous utopias and dystopias, and entrepreneurial cultures demand innovation thinking, critically engaging with potential futures is often reserved for specific disciplines that do this in very different ways. A business education may highlight strategies for identifying market opportunities or a literature education may provide tools for deconstructing science fiction narratives. Yet there are strategies that bridge these disciplinary approaches that would be relevant for students in a variety of disciplines. Drawing on scenario analysis and design fiction as two such strategies, this practice session will guide participants through an abbreviated scenario analysis and design fiction activity. Scenario analysis is a structured technique for collective brainstorming, analysis, and grounded speculation about future trajectories that can be adapted to a single class session or to an entire semester-long engagement. Design fiction is a visual and narrative technique for envisioning the potential contexts of a material object. We will discuss ways of adapting these strategies to fit different learning objectives and class environments.

Critical analysis and problem-solving often require engaging the future—whether developing smart cities, addressing climate change, designing robots, revamping healthcare, or building resilient communities. Yet future-thinking also rests on tacit knowledge, implicit assumptions and values, and intrinsic uncertainty regarding the consequences of complex and interdependent phenomena (Adam & Groves, 2007). Engaging the future uncritically may lead to major oversights and failures in our analyses and innovations. Scenario analysis originated as a tool for companies to develop strategic long-term planning (Wade 2012), but is increasingly being employed in anticipatory governance of emerging technologies, public engagement, environmental management, and design (Selin, 2011; Gruel & Stanford, 2016; Henriques et al., 2015). Design fiction mixes science fact, design, and science fiction to start conversation and provoke new ways of thinking about potential futures (Bleecker, 2009). By embedding novel material objects in future scenarios, design fiction shifts the viewer's focus from the material object to the social and political context within which the object may live. These tools provide concrete methods for analyzing futures and can be used in ways that involve research, critical thinking, visual communication, team-based work and creative problem-solving. These are widely recognized as necessary "21st century skills" (P21, 2015).

This practice session will engage participants in hands-on strategies for critically assessing and analyzing possible futures by leading them through an abbreviated scenario analysis and design fiction activity. This session has two goals: 1) participants will recognize the need to teach students methods for critically engaging the future, and 2) participants will be able to adapt and apply methods for engaging the future to fit their own disciplines and learning objectives. To that end, the session has the following objectives: 1) identify the steps for leading participants through a scenario analysis and design fiction activity, 2) identify several variations for each strategy, 3) map these activities to a current course. Participants will receive a standard template for each activity along with suggestions for further resources. In small groups, participants will be able to reflect on how these activities may be adapted to different courses.

Scenario analysis provides a semi-structured approach for engaging a group of people in rigorous speculation about the potential future trajectories of a technology, industry, or social phenomenon, from wind power to the future of print media. The practice begins by determining an appropriate future year that is beyond the immediate future but not so far out that the speculation becomes unmoored. Once the year is set, the group engages in collective brainstorming about what drivers (social, political, economic, technological, environmental factors) may influence the trajectory of this thing. Some drivers will be highly predictable and/or highly impactful, some less so. After brainstorming, a selection of drivers is mapped out to determine which are most likely and impactful. Two of these are selected and analyzed in order to create a grid with four quadrants that will make up four different scenarios broadly related to the two selected drivers. Participants develop a scenario for each quadrant, working backward from the agreed-upon future year to determine the key events of this future trajectory. Once the essential elements of a scenario are identified, participants may further develop a material aspect of this scenario through a design fiction that visually depicts the material (a technology, an object) in a broader context (examples will be provided). This can vary from a whiteboard sketch with stick figures to a more robust visualization depending on the context, skills,

and learning objectives of the participants. Scenario analysis and design fiction may be used separately or together, and each may be used to highlight the social, ethical, political, technological, and environmental dimensions of sociotechnical change; to encourage holistic and systems-based thinking; to uncover hidden assumptions and analyze relevant factors and gaps in understanding a phenomenon; to identify stakeholders; and to anchor ethical reasoning about a topic.

In small groups, participants will be presented with a topic that will be the focus of both the scenario analysis and design fiction, such as autonomous vehicles. Some background information on the topic will be made available. Participants will then be lead through the key steps in a scenario analysis: collective brainstorming about key drivers, prioritization and selection of key drivers for a scenario cross, and the development and naming of scenarios for each quadrant of the cross. Then participants will have an opportunity to create a piece of design fiction that incorporates a selected scenario. Participants will be presented with various strategies for adapting these tools and will work in small groups to reflect on how these tools might fit into their own contexts.

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**Design a Presentation Your Brain Will Love**  
Michael Vaughn, Elon University

We love sharing knowledge and ideas with the world. It's just that sometimes our presentations are...well, terrible. PowerPoint slides crammed full of text, distorted or blurry images, and ideas that seem to wander without ever coming together. It doesn't have to be this way! In this session you'll learn an easy, effective method for designing presentations that incorporates ways people learn with multimedia. Each concept is takes advantage of research-based principles of learning (especially when multimedia is involved).

## **Design Thinking for Supporting Undergraduates' Efforts to Be Innovative in Their Use of Technology**

Larry McCalla, University of Georgia; Tong Li, University of Georgia

This practice session explicates the design of an undergraduate level course featuring a constructivist learning environment geared toward helping learners use technology innovatively in the workplace. The course design and its iterations are at the center of a research project guided by the question: How does design thinking develop for undergraduate students as they identify and design an intervention to solve an everyday problem? Part A describes the activities designed and selected for the course. Part B reviews how evaluation is used to research and iterate the course design. Some interventions are shared including design scenarios, creativity challenges, prototyping, design journaling, collaborative activities, and interactive magic.

Within the context of expanding technological skills via an undergraduate level course, how can design thinking be utilized to achieve learning gains for students? Are ideas and principles of design thinking (Johansson-Sköldberg et al., 2013) helpful for guiding the use of technology for learning purposes? How do creativity and innovation fit with design thinking? How are these capacities developed and measured within course settings? These questions help to frame the idea of why using technology might help students develop their creative capacities, engage in designery ways of thinking (Cross, 2001), and be innovative in their use of technology. Florida (2012) argues people need to be creative to thrive in the post-industrial world. Additionally, learners need to become proficient in 21st-century skills (Silva, 2009; Spector, 2012) to prepare for jobs in the future and to be competitive in the global knowledge economy (Hartley, Kinshuk, Koper, Okamoto, & Spector, 2010). Although these skills are recognized as being important for students, there is no consensus about the way in which they can be taught (Rotherham & Willingham, 2009). Ideas from design thinking research and creativity research might guide interventions to foster thinking skills which learners can use in contexts outside of the classroom environment. Wells (2013) asserts that design thinking can be productively used as a guiding force in technological literacy. When learners take on the role of designer they are more likely to personally connect with learning goals and to create personalized learning systems. In this way, design thinking encourages learners to take active roles in their learning process (Rieber, Luke, & Smith, 1998). Nigel Cross (2001, 2011) distinguishes between a positivist conception of design science and design as a discipline. Design science prescriptive while Design as a discipline is open to qualitative variations. This distinction frees course designers of prescriptive rules for activity planning and course design as they attempt to bring design thinking into their courses.

Participants will receive a brief overview of design thinking and the research surrounding it (Plattner, Meinel, & Leifer, 2016). Participants will receive an overview of the research methods surrounding this course. Participants will review components of the referenced course, including an online guide and template for implementing similar courses. Participants will experience some of the interventions conducted via this course, including magic as instructional support. Participants will hear the rationale for why the design and research methods are adopted.

Part A of the presentation describes the project-based design of the course. The learner assessment scheme is linked to a constructivist orientation. Individual class activities and how they support the development of design thinking competencies are explained. These activities include prototyping, media design, collaboration, design scenarios, and presentations. Magic as an innovative instructional method is demonstrated. Additionally, individual project specifications, requirements, and project outcomes are reviewed. Finally, a support site including instructional materials for implementing the course is shared with participants. Part B of the presentation explains the research into the course and how design journals, prototypes, interviews, and surveys are used to explore the development of design thinking for learners. Activity Theory provides a framework for operationalizing the research context and formulating research categories. The reasons why the research is designed as it is will be given. Time will be made for Q&A discussion toward the end of the presentation.

Participants will be invited to participate in brief surveys during the session as a way of encouraging engagement with the material. In this way, the presenters will quickly collect data and use it to frame discussions. For example, before talking about tool use for students in the course the presenter will ask participants to complete a quick technology tool use survey. The results will be displayed and compared to which tools research participants have used. Also, a quiz about design thinking will be administered to begin a discussion about the nature of design thinking. Both the survey and quiz will be administered digitally and results will be instantaneously displayed to facilitate engagement with the subject matter. All participants will be invited to a sharing of online resources

prepared by the presenter for those interested in implementing the ideas discussed in this practice session. Finally, a brief interlude of magic performance will serve to entertain participants and demonstrate a method we use to facilitate conceptual development in the classroom.

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## Designing micro-learning sessions with mobile application

Qing Zhang, Virginia Tech; Deyu Hu, Virginia Tech

Micro-learning has become a new interruptive technology in education with the ubiquitous mobile technologies and web 2.0 tools. It refers to small learning units with short-term focused activities. In this practice session, the presenters first introduce micro-learning examples, and then walks participants through the steps of creating their own micro-learning module using a mobile application-UMU that supports both online and offline micro-learning. During this practice session, participants will complete an exercise consisted of open-ended and close-ended questions followed by a discussion on their responses to those questions. The attendees will also work individually or in a group to create a micro-learning module and upload to a live-UMU discussion session to share their project with the whole class.

With the ubiquitous mobile technologies and Web 2.0 tools, micro-learning emerged as a new educational innovation (Gu, Gu, & Laffey, 2011). It refers to small learning units with short-term focused activities (Arroyo, 2006; Kovachev, Cao, Klamma, & Jarke, 2011). Nowadays a mobile device is not only used for talking and texting, it has also become a learning tool. Micro-learning also takes place in various forms with the support of mobile devices, and people can read news, blogs, and watch a YouTube video on the bus or in the park. Micro-learning has been recognized as informal learning that happens anytime, anywhere with the support of any device (Abel, Moulin, & Lenne, 2006; Kovachev et al., 2011; Gu et al., 2011). Studies reported that micro-learning generates better learning outcomes and more enjoyable learning experiences for the learners (Abel et al., 2006; Arroyo, 2006). In comparison with a 45-minute to 3-hour long lecture, a micro-learning session can be as short as 2-3 minutes. Quite often learners experience cognitive overload in a traditional lecture session, however, information processing and retrieval become a lot easier when the contents are chunked into smaller sessions. Learning becomes more efficient when learners digest shorter contents at each step (Bruck, Motiwalla, & Foerster, 2012). In addition, when learners have the control over when, where, and what they learn, they are more motivated to learn. The completion of each smaller micro-learning session provides the learner with a sense of success. The feelings of empowerment and success enhanced motivation (Jones, 2009), which lead to better learning outcomes.

This practice session will utilize a mobile application called UMU to show micro-learning examples and demonstrate the processes of creating a micro-learning session. By attending this session, learners will be able to:

- Identify a wide variety of micro-learning resources
- Use UMU to create micro-learning modules using audio, video, quizzes and slides
- Create simple infographics, exercises, and games using UMU as advanced micro-learning practices

Upon successful completion, attendees may practice the knowledge and skills obtained from this practice session and create their own micro-learning modules for the courses they are teaching, a workshop or training session they will be delivering.

The practice session will first show the audience of an example of “effective communication” using UMU, which consists of several 2-3 minutes micro-learning sessions, including a 3-minute video on Effective communication essentials, followed by a 4-5 minutes exercise where the audiences will participate. The exercise contains a few close-ended and open-ended questions based on the video they watch. After this example demonstration section, the presenters will introduce other interactive tools in UMU the attendees could use to design micro-learning modules. They can either work on their own or in a group to design a micro-learning module on any topic using single tools or a variety of tools in UMU.

During the practice session, participants enter the exercise either by scanning the QR code, using the UMU session entering code or invited to join the exercise via mobile number or email address by the presenters. When they are done answering questions in the exercise, their answers will be displayed on the screen for in-class discussion. A live UMU online discussion session will also be created for participants to upload individual or group project instantly, which saves the time for participants to switch their devices in order to present their project to the whole class. An outstanding feature of UMU live discussion session is the support of uploading multimedia documents, including images, audios, videos, PowerPoint slides, interactive games, etc. All those files will be saved where the participants can access, review and download during and after this practice session.

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## **Developing and Integrating 360 Virtual Reality Into the Academy**

Linda Mihalik, University of South Carolina; Brian Mihalik, University of South Carolina

The Virtual Reality (VR) market was valued at \$1.8 billion in 2016, with projections to grow to \$38 Billion by 2026. The number of VR users was estimated at 43 million in 2016, and is expected to grow to 171 million by 2018. (Gutierrez, 2017). The entertainment industry has much to do with the growth. For example, the Fox network announced in January, 2017, that it is “breaking the barriers of traditional linear television” by launching *The Raid*, a 6 minute, exclusive 360-degree virtual reality prequel to the upcoming series premiere of *24 Legacy* (Nolfi, 2017). The National Broadcasting Corporation (NBC) produced 360 VR product for the 2016 Rio Olympics. One could view the Rio Opening Ceremony through Samsung Gear goggles, without the fear of the Zika virus. The education market is taking advantage of VR technologies to allow students to experience environments difficult if not impossible to visit. (Sinclair & Gunhouse 2016) Google is taking the world, and even the universe, to K-12 classrooms with its Google Expedition project (Hansman, 2016). Stanford has produced a virtual underworld eco system to observe the degradation of coral reefs. (Virtual Human Intervention Lab, Stanford University) These are large organizations, major events, complex technology. These programs are developed with complex software which can have a steep learning curve and take a significant amount of time to produce. The release of inexpensive 360 cameras introduced the possibility of creating 360 VR videos at the click of a button. These devices can allow the average faculty member to offer a virtual experience to students even in light of declining budgets. This session will address the capturing, editing and sharing of VR content, using free apps, a low-cost 360 camera, and inexpensive viewing devices. Participants will be able to experience a virtual tour created with a 360 camera.

Much of the literature regarding the pedagogical use of virtual reality studied the impact of animated interactive programs on learning. However, the same impacts have been observed with recordings created with 360 cameras. Students are engaged and have a feeling of “presence” watching VR recordings. Pantelidis, (2009) stated “VR grabs and holds the attention of students.” VR allows the student to progress at their own pace and to concentrate on areas of interest. Diemer, Alpers, Peperkorn, Shiban and Mühlberger (2015) stated “Being by its nature virtual, i.e., simulation of reality, VR strongly relies on the adequate selection of specific perceptual cues to activate emotions. Emotional experiences in turn are related to presence, another important concept in VR, which describes the user’s sense of being in a VR environment.” Doyle (2008) notes the impact of emotion when he writes that finding personal emotion connections with content will aid memory formation. Glenn Gunhouse (2016), stated “What VR offers to my students is an increasingly true-to-life way of visiting places that we otherwise could not visit, either because they are very far away, or because they no longer exist.” Jen Hanson, a Google Apps for Education project manager, in a 2016 article for Smithsonian.com, sees VR as a tool for egalitarianism. VR allows students to experience places they could not afford to visit for economic or physical limitations. According to Marty Resnick, Research Director at Garner, Inc, the world's leading research and advisory company, “by 2021, 60% of U.S.-based higher education institutions will intentionally use VR to create an enhanced simulation and learning environment.” With all these supportive comments regarding 360 VR’s future, the question remains how can the faculty begin to address the integration of 360 VR into their academic agenda with minimal cost and effort?

Session participants will be able to - - identify benefits and drawbacks to using VR for teaching and learning. - determine where VR would be appropriate for the content area. - determine the cost of VR content creation for their discipline. - view virtual tours created with a low-cost 360 camera. - participate in creation of a 360 video.

This interactive practice session will feature two moderators. The first will discuss the pros and cons of virtual reality and demonstrate its use for an academic class. The second moderator will demonstrate the recording, editing and sharing of VR content. Participants can view content on their own devices and/or through demonstration VR goggles.

Participants will view virtual 360 tours on their devices. Participants may choose to create a 360 image on their own device or a 360 camera.

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## **Developing project skills through experiential learning: the case of making maple syrup with bioenergy**

Tom Hammett, Virginia Tech; Mike Rechlin, Future Generations

Many maple syrup producers we know started with a few trees and a canning pot on an open fire. Once the sound of the dripping sap and the smell of the boiling got to them they were hooked, and they started looking for more trees and a bigger pot. At this point, there is no end to the options to scale up, evaporate sap faster, and make investments on equipment. But how about that starting point? What are the options out there for the guy just getting hooked? Working with students in the “Society, Sustainable Biomaterials and Bioenergy” course, we tested the efficiencies of three commonly used backyard maple sap boiling methods against an innovative rapid boiling stove known as a rocket stove. The semester-long project gave students the opportunity to research sap and syrup production, visit a local sugarbush, solve problems for maple syrup producers, and develop a practical application of their growing knowledge of bioenergy through experiential learning. The “client” the West Virginia Maple Syrup Producers Association (WVMSPA) wanted to save fuel, and increase efficiency in boiling sap to make maple syrup. For this project the class tested the evaporating efficiencies of a barrel stove, and open (cinder block enclosed) fire, a propane turkey fryer, and a rocket stove. Early in the semester, the class was introduced to the basics of the maple syrup industry, then divided into four four-person teams, with each team assigned to test a different stove. Each student team researched a different stove design, fuel types (i.e., firewood species, pellets), the maple syrup industry, and various aspects of sustainability linked to maple syrup production. The students each visited a working maple syrup producer during the sap boiling season to learn first-hand about typical maple syrup operation. In the end, once the testing was complete, the teams each put together final reports that were sent to the West Virginia Maple Syrup Producers Association (WVMSPA).

A reading list will be provided to the participants in the session.

Results of the test will be reviewed as well as student reviews of the course and their ideas for next year’s class project. Students now understand the importance of the cost of materials and operation when comparing stove options. The teams gathered information on what it would take to construct these stoves and their operation, but we have not conducted a thorough review and analysis of the information they collected. The other important conclusion that can be drawn from this study is the value an improved stove could provide backyard syrup makers. In the end, the students contributed to an article in the WVMSPA newsletter that highlighted their results.

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The authors will conduct the session in a workshop format based on their work as coaches of faculty in team-based learning and experiential learning techniques. Participants will be engaged in discussion about key practices illustrated in this new class. Safely while conducting tests with open fires, working with rural stakeholders, preparing for testing with few materials, and preparing and measuring non-traditional inputs are a few of the areas to be explored with the audience. The audience will also be asked to give suggestions to help refine the course.

**Dramatization Promotes Learning and Engages Students**  
Helena Carvalho, Virginia Tech Carilion School of Medicine;  
Margarite McCandless, Virginia Tech Carilion School of Medicine

Teachers passionate about improving teaching methods read articles and attend conferences focused on pedagogy in higher education. We are inspired by constructivist theory and student-centered learning. Sometimes it is difficult to conceive of ways to transfer theory into practice. In this session, the presenter will lead a dramatization of the cardiac cycle. Volunteers will experience dramatization of a physiological process and discuss ways that they can apply this technique in other disciplines. This method is virtually free of any costs and can be reproduced in most classrooms with any number of students.

Over the past thirty years, educators became more and more interested in the science of learning and started incorporating learner-centered teaching strategies. Several authors urged us to stop teaching by lecture and start using active-learning activities (Bonwell & Sutherland, 1996, Lom, 2012). Our challenge is how to apply these techniques in our classrooms. When students struggled with learning a complex physiological process, the cardiac cycle, we developed an innovative technique, dramatization (Carvalho 2011, Dowlati, Musick, Zhang, Thornton, & Carvalho, 2016). Dramatization engages all of the senses, requires movement, and teamwork! Accordingly Lujan and DiCarlo (2016) humor promotes learning (2016) and participants will experience learning while having fun.

Participants will learn an innovative teaching tool, dramatization, by enacting a physiological process. Following the dramatization debrief, participants will explore ways they can apply this technique in their classes. The experience of learning by doing and having fun will stimulate and energize participants and unleash their creativity.

As an example of dramatization, each participant will mimic a cell and the group will represent the heart. The presenter will guide volunteers to mimic the physiology of the cardiac cycle. This activity requires no prior knowledge

10 min. Explanation of the activity and distribution of role: After a brief discussion/review of the events in the cardiac cycle, the presenter will assign roles: myocardium, nodes, valves, blood, and neurotransmitters. Following the initial presentation, volunteers will move their chairs in order to open an area for the dramatization. 30 min: Volunteers are going to act out their roles: Each individual will enact out their role and as a group will represent the right side of heart (right atrium and right ventricle). Participants will dramatize the cardiac cycle and the modulation by the autonomic nervous system 10 min: Discussion: Participants will reflect and discuss how they can apply this technique in their discipline.

## **Effective Strategies in Online Education to improve course organization, student success and student perceptions**

Deborah Maness, Wake Technical Community College; Denise Barton, Wake Technical Community College

A challenge in online education is student retention and successful completion of courses in a virtual environment. In an effective online course, instructors must provide clear content, feedback, and student progress. Students who receive consistent and clear instructions are more likely to understand and complete the assignments. How instructors present the course information and respond to student concerns affect the student satisfaction with teaching presence in the course. Two college professors researching student satisfaction with teacher presence in their online courses found that specific strategies within their online courses contributed to high student satisfaction with teacher presence. In addition, both professors experience high retention of students and high completion rates of students in these online courses. This research was conducted in response to results from a survey administered April 2016 as part of the college's quality enhancement plan (QEP), eLearning Preparedness across the College (EPIC) initiative focused on student preparedness and faculty preparedness to support increases in student success and retention, as well as calls for further research on teaching presence and communication from scholars. Through the investigation of synchronous teaching presence with their online students, these professors found that students were most satisfied with the organization and course design. Pleased with student satisfaction responses, the professors decided to investigate what common organization, design, activities, and feedback were in all online courses of both professors. While comparing course organization and practices, the professors found ten common strategies that may benefit all online course instructors. The purpose of this practice is to share effective strategies in online education to improve course organization, student success and student perceptions and have participants apply practices to their own online courses.

As demand for online courses grow, faculty are striving to design and develop online courses that engage these students and provide teaching presence. One way to provide teaching presence is through organization and design of the course. Currently, most colleges are establishing standards for faculty to follow in development and teaching of online courses. When designing e-learning and online classes, considering course structure, content presentation, collaboration and interaction, and timely feedback are required (Lister, 2014). Faculty must consider technology abilities, time constraints, and student motivation when interacting in an online environment (Watts, 2016). While faculty development of online classes in terms of pedagogy is important, faculty are also rated on responding to students in a timely manner. The responsibility for creating an environment of interaction is placed on the instructor, and learning management systems can assist, but most have limited capacity to support interaction (Serdyukov & Serdyukova, 2015). Teaching presence is most often measured by the amount of time the instructor spends within the LMS. However, students' perceptions of teaching presence may include more. Students require clear communication within the course directions, activities, assignments and assessments, but may view teacher presence as response to grading assignments and response to emails. Creating clear policies on the teacher timeline of returning graded work and emails allows for realistic expectations from students. Timely feedback creates higher student engagement and promotes students time in completing tasks (Novakovich & Long, 2013). Students, as well as institutions, can benefit from a virtual learning environment that is full of communication, collaboration, and community (Reese, 2014).

Participants will generate ideas of best practices for online pedagogy with an emphasis on organization and design, along with other components of teaching presence. They will generate ideas and strategies from their own experience and based on the subjects they teach. Their examples will be geared toward those that produce student retention and success in online courses. Participants of this Practice session will observe the best practices of two online courses in the subject areas of Business and English composition. Pedagogy and common strategies in both courses will be viewed within the LMS. A handout of ten strategies to improve online course organization will be provided with opportunities for student participation and suggestions for instructor feedback. Active learning and share and pair will be facilitated by the presenters in this session. They will provide participants with a handout, divide them into pairs and ask them to generate tailored solutions for their own courses. Then they will use a flipchart in each corner of the room to post their responses and join other pairs to generate multiple ideas and strategies. Then each group will report out their results to all participants and explain and describe how these strategies can be used in online courses, based on subject taught, to increase student retention and success.

Participants will be encouraged to take pictures of the completed flip charts with their phones and to continue the conversation concerning online pedagogy informally with their peers.

Strategies which improve course organization, student success and student perceptions in online courses:  
Organization of the Online Course •Standardized Course Menu order. •A weekly course schedule with assignments and due dates posted in the LMS in a printable format. •All assignment submission tabs populated by the first week of the course. •Weighted or current average column listed in LMS the first week of the course. Opportunity for Student Response •Posted instructions on how to begin a discussion thread and reply to students are posted and available to students before discussion board assignments are due. •Posted instructions that include guided questions for the purpose of utilizing metacognitive strategies that enable the students to reflect on their learning. •Posted instructions of a student-only discussion board at the beginning of the course for the purpose of allowing students to collaborate with peers and ask questions that they may not feel comfortable asking the professor. Feedback from Instructor •Feedback and communication of student progress is ongoing by ensuring the LMS gradebook is up-to-date and through sending of email reminders concerning assignment due dates to ensure timely submission by students. •The faculty members listed office hours, their standard response timelines for student emails, and their grading turnaround times. •Students view faculty personalized videos to welcome them to the course, to introduce the faculty member, and to communicate the course structure.

Participants will be engaged in an active learning process by working in pairs/groups using a handout provided by the presenters that outlines their best practices in online pedagogy. Participants will generate ideas of ways to implement one or more of these best practices in their own online course. They will listen, share, and evaluate these ideas. They will be able to generate ideas tailored to their own courses providing a personalized learning experience. Groups will share ideas using post-it notes and flip charts that can easily be photographed by participants, thereby, providing a valuable takeaway that they can use when they return and start incorporating these ideas in their online courses. Groups will report out multiple best practices in online pedagogy to ensure teaching presence. They will discuss how to implement these subject specific strategies in an online course. The workshop teaching strategies meet the needs of visual, auditory, and kinetic learning by using this presentation process.

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## **Embracing Student Subjectivity in the Classroom: Announcing Version 1.0 of Lloyd's Q Sort Tool**

Lloyd Rieber, University of Georgia

Q methodology provides a quantitative means of examining subjectivity. The cornerstone of this methodology is a data collection activity called a Q sort in which participants must sort a list of given items within a predetermined sorting grid. Although Q Methodology has a long history as a research tool, its use as an instructional tool has not been extensively explored. This is likely due to the fact that creating a Q sort in its traditional, paper-based form is very time-consuming as is the follow-up analysis. Few electronic versions have been produced and the ones that are available can be very expensive. To meet this challenge, the task of creating an original electronic version of a Q sort tool was begun almost three years ago. I have reported on my progress building this tool during the previous two CHEP conferences. The purpose of this presentation is to formally announce the release of version 1.0 of Lloyd's Q Sort Tool for Teaching. This practice session will demonstrate both the tool and the instructor interface. Free accounts are available to all interested instructors.

Q methodology was invented by William Stephenson in 1935 to study people's subjectivity in a quantitative way. It is often described as an "inverted" factor analysis because people, instead of measures about people, are reduced to a set of distinguishing profiles (i.e. factors). To do this, a group of people is asked to do a special forced sorting activity, called a Q sort, involving a set of items that tries to represent all views of a certain topic (Watts & Stenner, 2005). Each person's result Q sort reveals something about their subjectivities about that topic at that moment. The analysis then discerns the unique perspectives or profiles within that group of people. Q methodology has been used across a range of disciplines, as evidenced by a few recently published examples: Laypersons viewpoints on what constitutes healthy nutrition (Yarar & Orth, in press); practicing nurses' perceptions of nursing education practices (Hensel, 2017); and identifying commonalities about people's attitudes toward climate change (Byrne, Byrne, Ryan, & O'Regan, 2017). Despite Q methodology's long history in research it is rarely discussed as a tool for understanding student subjectivities in a college classroom. Surveys are good ways to learn about the diversity of student views, however the all-too-popular multiple-choice or Likert-scale question types make it easy for students to complete them without mindful engagement, such as quickly marking every item with the same score (Serfass & Sherman, 2013). In contrast, a Q sort requires a person to arrange a given set of statements into a pre-determined grid that takes the approximate shape of an inverted normal curve (Shemings, 2006). There are as many slots in the board as there are statements, thus forcing the person to subjectively consider the relative value of each statement.

There are three main goals for this practice session. First, participants will experience a Q sort first-hand on a topic related to higher education pedagogy. Second, participants will consider ways to incorporate Q sorts in their teaching. To facilitate this, I will provide an overview of the instructional strategy I've developed over the past three years. Third, participants will be encouraged to create their own instructor account in order to build their own Q sorts for use in their teaching. This session will make the case for the need for an electronic version of the Q sort activity. The most common medium for implementing a Q sort is paper and consequently can take days or even weeks to prepare and implement, followed by weeks of analysis. The app I've developed allows Q sorts to be administered quickly and easily within instruction. The app immediately captures and analyzes the Q sort data from participants, allowing for an immediate discussion of the results during the class. It needs to be pointed out that the analysis run by the app is different from a traditional Q sort analysis. The reason is that the app is designed to promote discussion and reflection about the subjectivity of participants in the class immediately after completing the Q sort activity. In contrast, a traditional Q sort the goal is to identify two or more "profiles" of subjectivity among the participants, using a variant of factor analysis.

There are both a technological and pedagogical aspects to the practice within this project. An electronic version of the Q sort app provides many instructional opportunities to be explored. Although the Q sort is well-defined in the literature as a way to collect research data on subjectivity, it is an open question on how best to use this activity to promote or support instructional goals. This session is designed to introduce participants to the instructional possibilities of Q sort using one approach I have developed as an example. I want to make this tool available to higher education instructors in order to let them identify their own creative applications of Q sorts in the classroom. The instructional strategy I've developed for Q sorts is based on collaborating with students to identify Q sort topics relevant to the class content. Students are asked to respond to simple questions such as "What does democracy mean to me?" The answers that students provide become the basis for a list of statements that represent the perspectives of

the entire class on the topic. These statements are then used in a Q sort. The Q sort app collects all of the student Q sort data, then does an analysis in real-time. The analysis has two parts. The first is an output of descriptive statistics representing a summary of the group's overall responses. The second is a correlation matrix where each person's Q sort is compared to every other member of the class. These results show which individuals share positive (and negative) correlations with each other. These correlations can be used to promote in-depth small group discussions to answer simple questions such as "how would you summarize the overall position of your group?"

Each participant will be invited to download the current version of the Q Sort app in order to immediately participate in a Q sort on a relevant topic, such as most preferred cities for attending professional conferences. The group will then view the results and discuss their implications. A discussion will then be held to consider the role and value of understanding student subjectivities in the classroom and how a Q sort can be used to achieve this. The group will also critique the instructional strategy I've devised with the hope that other creative approaches will be generated. If time permits, I'll ask the participants to form small groups with the goal of each group to identify one topic they believe is suitable for a Q sort. The session will end with a demonstration of the web-based instructor portal. The portal is used to create new Q sorts or adapt and reuse Q sorts available in the online library.

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## Expanding Mindfulness Pedagogy in Undergraduate Education

Alan Forrest, Radford University; Angela Cardenas, Radford University; Patricia Shoemaker, Radford University

Mindfulness practice is an experiential mode of learning and self-inquiry. It is the intentional attending to what is happening in the present moment without judgment or reactivity. Studies show that mindfulness can foster greater empathy and communication skills, improve focus and attention, reduce stress, promote emotional balance and a deeper sense of compassion, and enhance creativity and general well being

1. Participants will become aware of some of the research on student learning outcomes related to teaching mindfulness to college students. 2. Participants and presenters will discuss a model and resources for structuring a course on mindfulness and for planning individual class sessions on mindfulness. 3. Participants will experience a typical (shortened) class session in a course on mindfulness. 4. Participants and presenters will discuss how courses in mindfulness can be related to university-wide goals for promoting student retention and well-being.

Participants who attend this session will: learn mindfulness teaching strategies that can be incorporated into any classroom, understand how mindfulness can facilitate increased awareness of self and others, and how mindfulness can be used to promote an overall sense of student well-being. They will experience brief demonstrations of strategies that have been demonstrated to be effective in engaging students to deeper understand of self. Participants will be encouraged to actively participate in class activities that they will be able to use to motivate and engage their own students.

This session will replicate, in a condensed manner, the general structure of a typical class meeting. Participants will partake in various activities and exercises that students in the course normally experience. Therefore, session attendees will obtain a “felt sense” of what students experience through creative heuristic methods of instruction. Time will be allotted for questions and answers.

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### **Experience of “Clip” Course Development: “Internet Technologies in Economics” Case**

Tetiana Pryhorovska, Ivano-Frankivsk National Technical University of Oil and Gas; Olena Kornuta, Ivano-Frankivsk National Technical University of Oil and Gas; Nataliia Potiomkina, Ivano-Frankivsk National Technical University of Oil and Gas

This work focuses on the problem of teaching technique, technology and tutorial development for students with clip thinking/perception. All means of teaching technologies and techniques should refer the way of student’s perception and reproduce changes in types of activity. Teaching practice shows students with “clip thinking/clip perception” can pay their attention on the proposed material no more than 15-20 minutes. Gaming, comics, data schematic usage can significantly improve quality of education. We propose herein to conduct lecture refer the way of thinking by engaging students into communication, more discussion, fragmented presentation of information, interleaving of activity types, wide usage of “attractors”, etc. We use brainstorming, debate, forum, round table, Web-quests, crosswords, etc. during lectures and/or seminars to engage every student into discussion. Borders between lecture and practical lesson are blurred.

“Clip thinking”/ “clip perception” is a phenomenon pertains to modern generation of students (Rosen L.D., 2007). Scientists discuss their positive and negative features and methods of teaching, especially for Internet-based subjects (Yufeng Qian, Kijpokin Kasemsap, Thomas J. Tobin, Barbi Honeycutt (2016), R. Johnson, C. (2013), Brame, C.J. (2015) and others). As far as the visual perception is dominant for majority of students, the main idea of a “clip” course development is students' attention clutching by wide usage of “attractors”, turn them on discussions, group works, etc. So, the problem of information presentation is one of the main problems of “clip” course development.

This work presents experience on “clip” course development for computer-aided courses, like the “Internet Technologies in Economics” subject. This course covers the follow topics: Means of Online Communication (including advertising in social media, blogging, etc.); cloud technology and teamwork on shared documents; Internet advertising efficiency and web-site content analyze; Internet Shopping; e-commerce classes: B2B, B2C, G2C; online payment systems and systems of Internet-trading. The main idea of proposed approach is all means of teaching technologies and techniques should refer the way of student’s perception and reproduce changes in types of activities. It worth mentioning, clip thinking considering methods do not decrease importance of traditional ways of teaching. The problem of students’ information assimilation and this course online nature caused wide usage of presentations, videos, case samples, works in groups, discussions, online tests, social media, etc. So, the goal of this work is argumentation of teaching methods used for computer-aided course development with “clip” thinking consideration.

Teaching practice shows students with “clip thinking/clip perception” can pay their attention on the proposed material no more than 15-20 minutes. After that time they are distracted and a teacher has to provoke student's interest by interactive teaching methods, or students will try to use every opportunity to get their phone and plunge into a usual computer game. Educational technologies analyze shows developed course content should correspond to at least three conditions: to promote learning activity motivation, to be perceived by clip- thinking students and a full-fledged logical thinking. Educational literature and own practice made possible the following ways of computer-aided course development. They are: - Game approach for educational processes simulation to increase students’ involvement in applied problems discussion. In the common practice of gaming, much attention is paid to the emotional involvement of a student and his/her encouragement. Gaming makes education service lively, flexible, and interacting with the user. - Comics and information schematization are the ways of an educational material presenting in a brief comic form. Comics enlarge interest to a subject, increase interest to the studied science, and provide theoretical material remembering. - Data schematic – way of data presenting contains small but significant and correctly formatted information. Typically these data or statistic are simply to percept and remember because of their minimalistic design and high attraction. So, mentioned above approaches to educational content design (gaming, comics, data schematic, etc.) can significantly improve the quality of education. But, as far as the visual perception is dominant for majority of students, all guidelines were developed with wide visual means usage- so called “attractors” to define the m

As far as “clip” thinking becomes more and more spread among students, teachers had to develop new pedagogical approaches. In scientific literature, this phenomenon is considering as a negative one, despite some advantages of this kind of perception as multitasking ability, speedy intuition thinking and analyzing. We are sure, that in future

this way of thing will be prevalent; this way tradition teaching forms, method, techniques and technologies will get changes too. We propose herein to conduct lecture refer the way of thinking by engaging students into communication, more discussion, fragmented presentation of information, interleaving of activity types, wide usage of “attractors”, etc. Engaging students into communication is provided by discussion, brainstorming, debate, forum, round table, etc. Borders between lecture and practical lesson are blurred.

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## **Experiential Learning Across Disciplines: Building Networked Learning Communities Using Open Pedagogies and Interdisciplinary Perspectives**

Jyotsana Sharma, Virginia Tech; Amy Hermundstad, Virginia Tech; Amy Nelson, Virginia Tech; Homero Murzi, Virginia Tech; Gregory Purdy; Christian Matheis, Virginia Tech

The Graduate Education Development Institute (GEDI ) is a connected learning community comprised of five types of educators - the instructor of record, the graduate assistants, the invested alumni (“GEDI knights”), current students, and educators from across the globe. This course utilizes a variety of tools including blogs, Twitter, Google Docs, ThoughtSwap, and Hypothes.is to engage students in building individual and collective competency in topics related to pedagogical practices in higher education. GEDI’s interactive learning environment brings together students and educators from a variety of disciplines, which adds critical richness and depth to course discussions. By incorporating learner-centered constructivist approaches, GEDI engages upcoming educators with topics on how teaching and learning methods can evolve to suit the needs of new generations of students (Felder & Brent, 2017; Thomas & Brown, 2011). Traditional sage on the stage methods of teaching alone cannot accommodate the variety of experiences incorporated into the course environment and would limit the perspectives that are shared by the group as a whole, thereby limiting the learning potential of future faculty seeking transformative pedagogical strategies in the class. Year after year, scores of graduate students with a unique sociocultural perspective complete the class, and their perspectives are shaped throughout the course and carried into other higher education settings. The focus of this practice session is to describe techniques and approaches that work in this course environment and describe how these practices can be applied, assimilated or adopted in other higher education settings.

Global issues today require individuals who are able to continually adapt and utilize critical thinking and analysis skills to solve a variety of complex and interdisciplinary problems. To encourage this out-of-the-box problem solving, we are in need of innovative teaching strategies that allow educators to facilitate problem-solving abilities in newer generations instead of relying on the transfer of existing knowledge through traditional, sage on the stage, methods. Therefore, we have to start re-thinking the way in which teaching and learning takes place in current learning environments (Thomas & Brown, 2011). This presentation introduces the pedagogical innovations developed by Virginia Tech’s Graduate Education Development Institute (GEDI), explains the meta-level strategies involved in designing a collaborative environment for future faculty seeking to develop transformative pedagogies, and provides model examples for use in other applications relevant to pedagogy, curriculum design, and preparation of the future professoriate. Educational practices have begun to evolve from this traditional sage on the stage approach to a guide on the side approach where the student is not just a passive receiver of knowledge but is actively engaged in the materials. Environments where students play a more active role in engaging with course materials and creating their own understanding of the materials presented are known as a learner-centered environment (Felder & Brent, 2017). This idea of allowing students to co-create their own knowledge aligns with constructivist views of learning where knowledge is not simply transmitted to learners as absolute truths, but is constructed by them collaboratively (Fosnet, 2013). This helps students assimilate knowledge gained at a deeper level. To allow for this type of learning and active construction of knowledge, learning environments must be structured to facilitate it. With the digital age seeping into the teaching and learning environment today, in order to engage the new generation of learners, educators need to take advantage of the current resources available (Resnick, 2001). With this in mind, the Graduate Education Development Institute (GEDI), a graduate level class has been formulated and structured in a manner that has facilitated active teaching and learning environments. GEDI utilizes various forms of digital, social, and open learning tools in a higher education setting. By utilizing these methods as a means to scaffold the learning of the students in the class, the instructor and their team are creating a optimal space to develop critical thinking skills and innovative problem solving strategies. The purpose of this session is to provide an overview of these strategies being used in the GEDI course, and demonstrate how technologies and active learning strategies can be assimilated successfully into a higher education settings.

1.Participants will understand the premise behind this innovative pedagogical setting and how it contributes to formulating the learner-centered environment. 2.Participants will understand the need for diverse opinions and forms of expression to be included in the classroom space. 3.Participants will know how to apply and develop inclusive pedagogical approaches and design inclusive learning environments. 4.Participants will be able to develop student-centered networked learning spaces using effective educational technologies.

The Graduate Education Development Institute (GEDI ) is a connected learning community comprised of five types of educators - the instructor of record, the graduate assistants, the invested alumni (“GEDI knights”), current students, and global educators. We use a variety of tools including blogs, twitter, google docs and hypothes.is to engage students in topics related to pedagogical practices in higher education. This interactive format exposes students to multiple perspectives on a range of topics and prepares them to incorporate those perspectives into their own pedagogical praxis, the development of which is a primary objective of the course. After writing a blog post based on their own understanding and experiences, students engage with the larger community in asynchronous and face-to-face discussion. All participants in the course bring unique experiences, subject expertise, and perspectives to the learning community which guide the discussions throughout the course, essentially creating an interdisciplinary teaching and learning environment. GEDI’s interactive learning environment draws students as well as educators out of their silos, adding richness and depth to class discussions. Sage on the stage methods could not accommodate the variety of experiences and perspectives represented in the group as a whole, and would limit the learning potential in the class. The GEDI community expands with each iteration of the course. Year after year scores of graduate students complete the class with a unique sociocultural perspective that is shaped throughout the course and carry it with them to other higher education settings. Many of them remain involved with GEDI and continue to contribute to the learning community long after they graduate. We aim to present what works in this classroom setting and discuss how that can be emulated in other classrooms to raise the quality of teaching and learning in higher education settings.

Participants will have the opportunity to engage and respond to the concepts being presented through initial individual reflection, then through group conversations working collaboratively during the session, via Polleverywhere, and utilizing Twitter. The premise is to engage the educator in ideas being presented, to actively interact with other participants and understand their views, and for participants to experience how these ideas could work in their own classrooms with their student populations.

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## **Facilitating Student Engagement in the Undergraduate Classroom: How to Use Undergraduate Teaching Assistants (UTAs) without a UTA Program**

Jeffrey Murray, Virginia Commonwealth University; Bonnie Boaz, Virginia Commonwealth University; Joshua Galligan, Virginia Commonwealth University; Mary Lou Hall, Virginia Commonwealth University; Elizabeth Kreydatus, Virginia Commonwealth University; Larry Williams, Virginia Commonwealth University

This practice session will introduce participants to the Undergraduate Teaching Assistant (UTA) program in the Department of Focused Inquiry at Virginia Commonwealth University. While the session will offer an overview of the program, it will focus on outlining and brainstorming different ways of creating peer leadership and mentoring opportunities to facilitate student engagement and enhance student learning in the undergraduate classroom, with particular attention to how one might empower student mentors and leaders in the absence of an actual UTA program. Session participants will explore a variety of uses of UTAs in the undergraduate classroom, including using single UTAs in a co-teacher model versus using multiple UTAs in a collaborative-peer model, using UTAs in the first-year seminar versus using UTAs in the research writing course, and using UTAs in traditional courses versus using UTAs in service learning courses. In addition, the session will discuss (and strategize) available options of (i) peer mentor programs that give course credit and peer mentor programs that pay students, (ii) utilizing existing resources of graduate teaching assistants, undergraduate research assistants, or independent study courses, and (iii) informal “Co-teacher of the Week” program or “Visiting Speaker” series. In any case, sharing classroom leadership with students, either formally or informally, inherently disperses the power and control traditionally held by the lead instructor. In our experience, this dispersal of authority creates new opportunities for student learning and fosters a more Freirean, democratic, and effective classroom environment.

Between a healthy body of literature on the values of experiential education (see Carver, 1996; Eyler, 2009) and the profound benefits of peer-to-peer mentoring (see Searight, Retzliff, & Narkiewicz, 2015) on one hand, and a growing body of literature on a variety of uses of undergraduate teaching assistants (UTAs) in a learning-centered classroom (see Crowe, Ceresola, & Silva, 2014; Dempster & Dempster, 2015; Gordon, Henry, & Dempster, 2014; Murray, 2014; Murray, 2015), on the other, there is sufficient evidence suggesting tremendous benefits of using UTAs in the classroom, both for the students enrolled in the course and for the students serving as UTAs. This practice session seeks to both synthesize and build upon existing literature to share and explore a wide variety of UTA applications, across a variety of course types, curricula, and administrative/bureaucratic environments.

We hope to offer participants in this practice session a clear picture of the range of ways we share classroom leadership through our undergraduate teaching assistant (UTA) program in our own classrooms at Virginia Commonwealth University. While we will begin with our own UTA program as an example of student leadership, we will quickly move to a broader discussion of the pedagogical benefits of empowering current and former students as leaders and mentors. We will describe the formal structure we’ve put into place as we work with our own UTAs, and the specific advantages and challenges that come with inviting students to take on classroom leadership roles. This practice session will invite participants to share and reflect on their own experiences empowering students to take on classroom leadership roles, and to discuss reasons they’ve chosen to pursue this type of classroom management. By the end of the session, we hope to collectively explore ways that instructors in a wide range of disciplines and diverse classrooms might invite their own students to take on roles such as peer mentors, small group facilitators, or classroom leaders. Overall, our goals for the session are to have participants: 1. Understand a variety of ways in which undergraduate teaching assistants (UTAs) can be used in the undergraduate classroom; 2. Consider a variety of scenarios in which UTAs might be introduced into the classroom without a formal UTA program or administrative resources; 3. Crowdfund ideas about how to include former undergraduate students into the classrooms as engaged peer leaders.

This session will discuss the pedagogical practice of using undergraduate teaching assistants (UTAs) in the undergraduate classroom. With an emphasis on freshman composition and research writing courses, the session will review a variety of ways in which successful and motivated students can significantly impact student engagement, student learning, and student success. Such practices include using single UTAs in a co-teacher model, using multiple UTAs in a collaborative-peer model, using UTAs in the first-year seminar, using UTAs in the research writing course, using UTAs in traditional courses, and using UTAs in service learning courses. In addition to this review, the session will discuss potential options for implementing an undergraduate teaching assistant program,

ranging from the creation of a UTA program that awards course credit to students, a UTA program that pays students, or a program that redeploys existing resources allocated to graduate teaching assistants, undergraduate research assistants, or independent study courses. Because we understand that these options may not be available to all faculty, we will bring ideas for using our undergraduate teaching model in individual classrooms, including a “Co-Teacher of the Week” program and a “Visiting Speaker” series. We will also brainstorm with session participants other ideas for ways in which we can create opportunities for former undergraduate students to take on leadership roles in our current classrooms.

Being overachieving, we intend, perhaps unrealistically, to engage session participants in a variety of ways. First, we intend to model a variety of common modalities in which undergraduate teaching assistants (UTAs) are used in our courses—such as building community with students, facilitating small groups discussions, and low-stakes co-teaching. These demonstrations should not take time away from other elements of the session insofar as they will be integrated into the presentation of the “content” of our presentation—just as we use UTAs in our courses. Second, we intend to solicit both best practices and questions from session participants throughout the session. Third, we intend to engage session participants in brainstorming how to best incorporate UTAs (or less formal UTA-like strategies) in their own courses. Finally, depending upon the particular interests of session participants, we might divide out into “spontaneous” breakout groups to further discuss and brainstorm (i) best practices in the context of specific course or curricular needs, and (ii) administrative options for the implementation of UTA-driven pedagogy.

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## **Facing Feedback: Using Metacognition Indicators to Provide Meaningful Feedback about Students' Approaches to Learning**

Patrick Cunningham, Rose-Hulman Institute of Technology; Holly Matusovich, Virginia Tech; Sarah Williams, Virginia Tech

Research has shown that (1) metacognitive skills are important to positive learning outcomes, (2) students struggle to engage in appropriate metacognitive strategies, and (3) faculty struggle to teach and assess these skills. In this practice session, participants will practice assessing student responses related to their metacognitive awareness using our metacognitive indicator rubric. The metacognitive indicator rubric is a tool instructors can use to give meaningful, formative, and timely feedback to their students about their use of metacognitive strategies. When the metacognitive indicator rubric is combined with an intentional metacognitive intervention in technical settings, our research shows that students are more engaged and will adapt metacognition strategies that work for them. The session will also include interactive conversation about how participants can adapt the metacognitive indicator rubric, including the concept of formative metacognitive feedback, for use in different courses and learning contexts.

Have you ever heard a student say, “I knew the material I just didn’t do well on the test.” How did you respond? While it may be tempting to say, “Maybe you should have studied more,” we argue that a productive conversation that addresses metacognition might be more rewarding for the teacher and student. Drawing on Flavell (1979) we define metacognition as the knowledge and regulation of one’s own thinking (cognitive) processes. Based on current literature, we conceptualize metacognition as shown in Figure 1. Essentially, engaging students in conversation about how they know what they think they know (i.e., the elements of metacognitive knowledge and regulation) could help them better assess their learning and refine their approaches to learning. A challenge in helping students develop and use metacognitive skills lies within being able to measure metacognition particularly in classroom contexts. Research methods used to determine relationships between metacognition and learning typically include self-report surveys (e.g., Index of Reading Awareness (Jacobs & Paris, 1987), the Motivated Strategies of Learning Questionnaire (Pintrich, Smith, Garcia, & McKeachie, 1991), the Metacognitive Assessment Inventory (Schraw & Sperling Dennison, 1994) and the Learning and Study Strategies Inventory (Weinstein & Palmer, 2002)), interviews, think-alouds (where participants describe what they are doing while they solve problems), and error detection activities (in which participants are given a problem solution or reading passage with deliberate mistakes and asked to identify the areas that make understanding difficult). As techniques for everyday classroom use, these approaches are limited as they are time-consuming and complex and some have validity concerns (e.g., metacognitive constructs can be difficult to define in concrete ways causing issues of construct validity when using self-report questionnaires (Pintrich, Wolters, & Baxter, 2000)). To address these concerns, we developed a rubric that can be used as an indicator of students’ metacognitive engagement (Cunningham, Williams, & Matusovich, 2017a).

The primary goal of this practice session is to engage participants in evaluating student responses to questions about how they learn and providing appropriate feedback on their approaches to learning. Using a combination of our own data (from an NSF-funded project) and data generated in the workshop itself, we will evaluate actual responses and construct feedback. At the completion of the session, participants will be able to: 1) define and describe key elements of metacognitive learning, 2) describe one possible approach for teaching metacognition, 3) articulate possible student responses to questions about their learning, and 4) construct potential feedback to support student development as a learner. We will accomplish these goals by opening the session with a short discussion of challenges associated with measuring and monitoring students’ metacognitive learning. To provide context, we will briefly introduce an intervention (a series of videos, “in-class” activities, and “homework” activities) we have been using to promote metacognitive engagement in students. We will share some examples from the modules and ask participants to respond to questions as they believe their students would respond. We will then evaluate actual response from our project using the rubric we have designed. To facilitate the transferability of the rubric, we will then collectively generate lists of the types of evidence of metacognition that might be seen in different contexts and use this evidence and the rubric to evaluate their constructed student responses. Finally, we will generate and discuss appropriate feedback for students in different scenarios so that participants leave with a range of possible feedback questions and comments relevant in their own context.

Despite the importance of metacognition to learning, it remains challenging to teach and assess. To that end, we have created an intervention to aid in developing metacognitive knowledge and skill and an accompanying rubric to

help teachers evaluate progress. From a research perspective, our project has shown that metacognition can be taught and learned in engineering classroom contexts (Cunningham, Morelock, & Matusovich, 2016). Moreover, we demonstrated that a rubric can be used as an appropriate evaluation tool (P. Cunningham et al., 2017). From a pragmatic perspective, we have found that metacognition can be a tool to engage students in conversations about learning and to get them to consider how effectively they are taking stock of their learning. Such interactions can also foster a more rewarding teaching experience for instructors (Cunningham, Williams, Matusovich, 2017b). Overall, this session focusses on these student conversations. Our intervention includes six modules taught in sequence within a course. The intervention is described in detail elsewhere (Cunningham, Matusovich, Hunter, & McCord, 2015; Cunningham et al., 2016; Williams, Morelock, Matusovich, & Cunningham, 2016). In short, each module includes a video that explains elements of metacognition, post-video reflection questions, an in-class activity, and a post-class assignment. The videos are domain-general within engineering such that they provide a general view of metacognition situated within a STEM higher education context. In-class activities and post-class assignments are tailored to the particular course context. We developed the metacognitive indicator rubric by evaluating student responses to the modules in our intervention. In accordance with our IRB approval, we used only responses where students had consented. We selected the questions that best exemplified each module and coded the student responses using a priori codes (Patton 2002) from our framework (Figure 1). We used this process to identify key elements such that responses could be ranked as "high", "medium", or "low" with regard to descriptions of strategies and providing evidence to support claims.

Our session is designed to maximize participation. After a brief overview of our metacognition modules and their application, we will engage participants in activities and rich discussion. The overview is necessary to contextualize the discussion around assessing student metacognitive indicators. Participants will adopt the perspective of their students and participate in a portion of our intervention activities (video clip and follow-up questions). We want them to craft the kinds of answers they have seen or anticipate from their students. Participants will then return to the instructor perspective to examine actual student responses and formulate feedback. Based on their answers and their perceptions of student metacognitive awareness, we will then discuss the metacognitive indicator rubric as an applicable option for instructors looking to assess metacognition in their students. We will use our own data to provide examples on how to use the rubric and the kinds of feedback that can be given. Then discuss similarities and differences across the contexts of the participants.

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## **Fostering a Transformational Education Culture for Academic Success**

Chaya Jain, Virginia State University

The purpose of this proposal is to describe key aspects and process of fostering a transformational education culture (TEC) toward increased academic success. TEC requires a fundamental change in existing approaches and underlying assumptions, obligating “a positive and purposeful transformation of every individual involved in education” (Apple, Duncan & Ellis, 2016). A transformational culture thus exemplifies an engaged educational community. Since any transformation fundamentally involves one’s mindset, this paper describes Process Education Theory’s 14 key aspects of educational culture (Hintze-Yates et al., 2011; Apple et al., 2017) and five intrinsic but critical impact elements to effect the change. Employing a PowerPoint presentation and an interactive exercise, the proposal aims to provide useful information for all stakeholders involved in the process and practice of teaching and learning.

The contemporary concept of transformation is rooted in Kuhn’s (1970) term ‘paradigm shift.’ It refers to a process where a whole new set of concepts or beliefs begin to replace the pre-existing set for a given discipline. Expanding Kuhn’s view, Mezirow and Marsick (1978) initially suggested transformation theory as a model of change in adult learning. Scholars have addressed various dimensions of transformation, and among the earlier proponents, cognitive psychologist Piaget (1951) noted that cognitive learning involves two types of processes, assimilation and accommodation. Metacognition, or understanding of the self, has been a constant for numerous scholars (Blatner, 2004; Pintrich, 2002), while others have proposed convictional (modification of belief systems) as well as behavioral dimensions. Mezirow’s ‘meaning’ perspective (1978, 2000) describes a person’s basic belief or assumption having a fundamental role in affecting modification or change. Noting however that Mezirow’s theory of perspective transformation fails to consider context, Clarke and Wilson (1991) suggest a contextualized view of rationality as the requisite link between meaning and experience. Synthesizing these various theories with 25 years of pedagogical research and knowledge, proponents of Process Education theory (Hintze-Yates et al., 2011; Apple, et al. 2017) advise 14 key aspects of educational culture (Table 1) along with five impact elements. Together, they form the basis of this presentation.

1. Define and differentiate the 14 aspects of educational culture along the traditional vs. transformational behaviors and practices to demonstrate the process of transformation; 2. Model an interactive exercise of analyzing one’s institution on the transformation continuum; 3. Offer resources for further research, professional development and practice.

This presentation focuses inventory of one’s existing educational culture and subsequent steps toward transformation for increased academic success. It highlights necessary tools and techniques toward the desired transformation. The process begins with two simple fundamental questions: (1) what has to happen to motivate a change; and (2) where does the change begin? The answer to both questions leads to one’s mindset, which not only involves thoughts but also what Piaget (1951) calls a “felt sense of what the world is about.” Since a mindset involves one’s way of thinking, opinions and points of view, it invariably shapes one’s belief system. On the other hand, an educational system; whether traditional or online, involves (Fig. 1): (1) institutional values (2) support practices (3) faculty mindsets (4) student mindsets and (5) teaching and learning characteristics. Further, an educational culture also involves stakeholders’ beliefs, perceptions, relationships, attitudes and formal and informal rules, etc. Identified by Process Education (PE) theorists (Hintze-Yates et al., 2011 and Apple, et al., 2017) as the 14 key factors (Table 1) over 25-years of PE research and practice, these holistic analytic considerations help shape and influence all aspects of teaching and learning in realizing the needed transformation.

Note to Reviewers: Because the formatting won't allow uploading of the interactive exercise matrix here, the explanation is as follows: Using Process Education theory’s 14 factors and five elements as the knowledge guide, participants will use a 20-minute hands-on exercise focusing two most critical areas needing transformation. A group of two individuals will be given a practice matrix containing three columns and three rows for identification of: 1) two most critical areas needing transformation; (2) the existing faculty and student mindsets regarding teaching and learning, and (3) using the learned knowledge, identification of most feasible recommendations to effect transformation.

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## **Hands Online, Minds Online: Active Learning Strategies for Digital Environments**

Traci Gardner, Virginia Tech

This Practice Session explores how active learning strategies from the face-to-face classroom can be adapted to fit digital environments. The session will begin with a review of the value of active learning strategies and briefly discuss their relationship to Bloom's cognitive taxonomy. The presenter will match specific active, face-to-face strategies to active, digital strategies, sharing details on the tools and situations best suited to the strategy. Specific learning outcomes and assessment methods will also be identified for each active strategy. After hearing information on several specific strategies, teachers who attend will test the digital strategies using their computers or their smartphones. In addition to information on and first-hand experience with these active digital strategies, teachers will leave the session with access to full explanations of the strategies. The presenter will share a website that —Explains the active learning strategies. —Discusses how to accomplish the same strategies in digital environments. —Recommends online tools that can support the practices. —Identifies possible learning outcomes. —Suggests assessment methods. —Provides examples of the strategies when possible. The session will conclude with group discussion of the digital strategies, the tools, and their effectiveness.

Active learning strategies focus on engaging students directly in their learning process by “involving [them] in doing things and thinking about the things they are doing” (Bonwell & Eison 1991). With active learning strategies, a hands-on, minds-on approach asks students to move beyond the absorption of ideas typical of a lecture-based class to deep engagement with the ideas and development of relevant content area and critical thinking skills. As a result of the active thinking and engagement that is required, active learning strategies can be developed for all six levels of Bloom's Revised Taxonomy, from lower-order to higher-order thinking skills (Anderson, Krathwohl, & Bloom, 2001). Students can similarly benefit from active thinking and engagement in digital environments when the active learning strategies of the physical classroom are rethought for the virtual classroom. Once active learning strategies shift to online contexts, their educational value can be explained with Bloom's Digital Taxonomy, a rethinking of the Revised Taxonomy that has been “modified to take into account the new behaviors and learning opportunities emerging as technology advances and becomes more ubiquitous” (Crockett, Jukes, & Churches, 2011). As is the case with the active learning strategies of the physical classroom, digital active learning strategies fit all six levels of the Digital Taxonomy, moving from lower-order to higher-order thinking skills. By developing active learning strategies that match the tools and capabilities of the digital classroom, educators can increase students' engagement and interaction, building a stronger learning community while simultaneously supporting designated course and learning outcomes.

This session will outline the educational value of active learning strategies and demonstrate how to customize or rethinking the strategies of the physical classroom for use in the virtual classroom. After attending this session, participants should be able to —Explain how active learning strategies support student engagement. —Experiment with digital tools to develop active learning strategies. —Identify how specific active learning strategies align with Bloom's Digital Taxonomy. —Determine the appropriateness of digital tools to specific active learning strategies. —Adapt active learning strategies for use in digital environments.

This session will focus on active learning strategies, educational activities “involving students in doing things and thinking about the things they are doing” (Bonwell & Eison 1991). The presentation will explore specific strategies that can be used in digital environments, whether in a physical computer classroom, in a hybrid course, or in a fully online course. Specific strategies that will be demonstrated include such activities as polls, jigsaws, pausing for questions, debates, role playing, gallery walks, and entrance/exit slips.

In this highly interactive session, participants will discuss, customize, and experiment with active learning strategies using digital tools on their computers or smartphones. Session attendees will be encouraged to comment on and provide examples for the strategies as they are presented. As possible, participants will try out the strategies as well. For instance, as they enter, attendees will be invited to answer an online poll question, which will demonstrate both polling and entrance slips. Later in the session, participants will collaborate in small groups to customize a specific activity for a digital tool and then share their work in jigsaw style. To allow time to demonstrate a significant number of strategies, the session will necessarily limit interaction with the digital tools to shorter activities (e.g., answering only one poll question, rather than several). By participating in these activities during the session,

attendees will not only learn about active learning strategies but also engage directly in the strategies. While interaction with each strategy will be brief, the strategies discussed and demonstrated will be as extensive as time allows.

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## How Making and Makerspaces Promote Healthy Mindsets for Learning

Michael Vaughn, Elon University

A makerspace is a physical place where people gain access to tools, supplies, knowledge and support to pursue projects that interest them. I define making as the process of building physical or virtual artifacts that have value. Though Papert (1980) established the underlying pedagogy of making, little research has been conducted to directly examine the impacts of maker education or makerspaces on a student's relationship with learning. The accountability movement in K12 fueled the further proliferation of standardized testing at multiple grade levels. This movement has affected students in multiple ways. They enter higher education with distorted perceptions of how learning works, as well as perfectionistic behaviors and mindsets that sustain damaging relationships with education, and themselves. Tangential evidence exists to support how making and makerspaces can help disrupt and counteract these damaged relationships with learning. This is an essential, emerging area of research in an era that offers students unprecedented access to creative tools, and where makerspaces are becoming increasingly common in higher education.

Research indicates standardized testing in K12 negatively impairs student perceptions of what learning is and how it works (Gere, 2014). Stevens and Miretzky's (2012) work indicates faculty already observe these negative effects on college students' attitudes toward learning, with students struggling to master challenging work, failing to recognize the link between effort and success, and lacking a willingness to struggle with complicated ideas and theories. These behaviors are indicative of perfectionism and perfectionistic behaviors, expressed through a fear of negative evaluation (Watson & Friend, 1969). This perfectionism doesn't just impact students' relationship with learning; it also leaves them more vulnerable to anxiety, depression, suicide, and other mental illnesses (Brustein, 2013). Maker education and makerspaces represent one SoTL approach to confront and combat these negative effects of standardized testing while improving the mental and emotional well-being of our students. This session will explore the role maker education and makerspaces can play in promoting healthy mindsets for learning, including: (1) intrinsic motivation by helping students take ownership of their learning, (2) deeper learning by developing self-awareness of what a student does and does not yet know, and (3) creative problem solving by reframing and valuing failure as an essential element of the learning process. Given space limitations, I suggest further reading on making, makerspaces, and the arguments outlined in this paper: <http://elon.libguides.com/c.php?g=542499&p=4998404>  
Participants will: -Identify perceptual barriers to learning they observe with their students -Experience a multimedia-supported presentation outlining the concepts of maker education, and the value of a makerspace -Engage in activities that introduce and illustrate elements of maker education -Reflect on their experiences to generate an idea that incorporates maker education into their instruction, and co-develop that idea further with a partner.

The role of making as an instructional and learning practice has hit an inflection point where it is now fairly well-known in higher education. Many colleges and universities have, or plan to open, makerspaces for students. What I find most interesting is an idea that has tangential support, but is lacking in direct research: That making counteracts and disrupts habits of perfectionism. I've found evidence of four pillars that indirectly support this idea: Standardized tests have a negative impact on students' views of what learning is and how it works (Gere, 2014). These impacts manifest themselves through habits of perfectionism (American Academy of Pediatrics). Perfectionism is driven by a fundamental fear of failure, or negative evaluation (Watson & Friend, 1969). The most effective treatment protocol for fears/phobias is exposure therapy (Kaplan & Tolin, 2011). My argument is that if students are entering college with perfectionistic habits and tendencies, leading to a fear of failure that prevents them from establishing a healthy relationship with learning, then what they need is exposure therapy for failure. A makerspace is based around concepts of iterative design, which require and place value on failure as a key element of project design, development, and revision. In short: Making as an instructional and learning practice is fundamentally exposure therapy for a fear of failure.

Any combination of the following: -Interactive Poll to highlight participant perceptions of student attitudes towards SoTL -Introduction to maker education, supporting theories and constructs -Marshmallow Challenge to engage participants with iterative approaches to design, with a follow-up discussion of successes and failures -LEGO Experience to illustrate a perceptual barrier to SoTL -Design activity to collaboratively develop ideas for incorporating maker activities into instructional practice -Q&A

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**How Well Do Truly Multilevel English as a Second Language Classes Work? A Look into the Factors That Contribute to the Existence, Challenges, and Management of Multilevel Language Teaching**  
Pinar Gurdal, Virginia Tech

To reach the goals they set in their teaching, teachers take into consideration multiple factors their students present; level of literacy, language level of English, culture, to name a few. When the language level discrepancy is wide among students in an English as a Second Language class, other factors that inhibit uniform teaching seem to arise more starkly. We, educators, find ourselves trying to narrow the gaps among varied educational backgrounds, so our international students, whether they are college bound learners who will be tested by the demands of academia, or refugees who will be challenged by unfamiliar ways of life, participate and learn. In this practice session, the presenter, with the intention of covering a multitude of issues, such as reasons for studying English, learning styles, classroom expectations, administrative necessities, etc., will go over the factors that make a classroom multilevel. She will present her own classroom experiences in terms of challenges, specific approaches and techniques to diminish those challenges, and possible positive and negative outcomes for students of a multilevel classroom environment. The presenter will exhibit her own conclusions and recommendations that will summarize strategies that will lessen anxiety among students, increase the awareness and support of the administrators, convey professional development activities that may lead to fundamental changes needed in teacher's practice in a multilevel classroom. This session will be a complete exchange of ideas, opinions, experiences, recommendations, and sources on the topic between the presenter and her audience as she expects to reorganize and distribute her findings that form during the discussions throughout the session in the hope of benefiting educators who find themselves in a multilevel classroom.

Having students from diverse cultural backgrounds, socioeconomic levels, literacy levels, learning styles, and ages makes multilevel classes a reality in English as a Second Language (ESL) classes. Considering all the elements that make the diverse student body, "Multilevel classroom" can be considered an "umbrella term (Burt, 1997). Research on this topic has been scarce as teachers walk into the classroom knowing their teaching will be adapted to a variety of levels and groupings. Yet, how do we reach all the learners when language skills vary a great deal from one student to another and when that particular factor can be a barrier when we try to overcome mixed skills and backgrounds in the classroom? While level of literacy, age, and culture are factors that need to be considered in any ESL classroom (Aydinli & Horne, 2006), these factors become more challenging to manage in the presence of severe differences in language level in English. Nevertheless, research suggests the hurdles in classroom management due to gaps in language level can be rewarding and a source of confidence in the teacher once overcome (Roberts, 2007). Students will also be the beneficiary of newly acquired confidence when they get to do different tasks (as opposed to one single assignment for the whole class), play different roles (in conversation or arguments), and are encouraged when they provide different responses to the same materials or tasks. The results are seen as decreased disruptive behavior and increased cooperation in an improved classroom atmosphere (Reid, Clunies-Ross, Goacher & Vile, 1981). In the light of research, our own experiences, and input from our students, we, educators, must not lose sight of the positive that comes from a successfully managed multilevel ESL class where our students can be partners in their own education.

In this practice session, the participants will have a chance to refresh their knowledge on the factors that make a class a multilevel class. The impact of students' level of language in English will be discussed in terms of those factors. The participants will voice their experiences with multilevel teaching. Strategies and methods to decrease students' anxiety, to increase the effectiveness of teaching, and to boost confidence in both the student and educator will be discussed. The presenter, with the intention of facilitating discussion, will mention specific strategies in dealing with written work, grouping, motivation and activation, individualizing and personalizing student work (Hess, 2001). The participants will have a chance to be introduced to sources that may be new to them.

The practice that the presenter hopes to be exemplified is a re-thinking of challenges of a multilevel classroom, which, in the presenter's experience, is a truly multilevel classroom due to severe differences among students' English language skills. The practice will include specific strategies to turn challenges into a rewarding learning and teaching experience and draw conclusions on what needs to be done.

The presenter will mention at the beginning of the session that the participants will be encouraged to contribute to the discussion through questions or comments throughout the presentation as opposed to after the completion of the presentation. If a participant would like to express a point that involves a later topic in the presentation, the presenter will make a suggestion to come back to that point. The participants will be encouraged to mention strategies that everybody can take to their classrooms as the presenter will do the same.

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## **Identifying social and personal factors affecting students' transition to Higher Education by using a Situational Analysis approach**

Stephen Rutherford, Cardiff University

The transition from secondary to tertiary education is often a challenging one, and many students struggle, or withdraw from their course, due to a failure to adapt. The pressures and drivers on students during this period are numerous, and include personal and social impacts, as well as academic ones. Being able to identify the diversity of potential impacts – human and non-human – that affect new students is of considerable benefit to supporting those students and enabling them to develop coping strategies. A device that can assist in identifying these social and personal impacts is the methodology of Situational Analysis. Situational Analysis is firmly embedded in the analytical methodology of Grounded Theory, whereby data are not analysed in a positivist manner, but rather insights are gained which emerge from the data themselves. Situational Analysis takes these emergent themes, but then uses the production of various types of maps to tease out the diversity of interactions, social groups, and positions taken that impact upon an individual or situation. Situational Analysis can also be used as a problem-solving tool for organisational or structural problems, outside of research. This workshop will use Situational Analysis to investigate the factors that impact on students during the transition to education. As a hands-on workshop, participants will draw their own 'situational maps' around student transitions to higher education, and discuss the benefits and limitations of Situational Analysis as a heuristic device. At the end of the session, participants should be familiar with Situational Analysis as a methodology, but also have gained insights into their students which will facilitate participants adapting their practice to better support students who are new to higher education.

One of the most prevalent methodologies for analysing qualitative research data is the Grounded Theory approach of Glaser and Strauss (1967). Grounded Theory aims to avoid a positivist approach to data analysis, preferring instead to approach the data without preconceptions, and allow insights to emerge from the data itself. Grounded Theory as a methodology has developed considerably since Glaser and Strauss's own seminal work, most notably by the schism between Glaser and Strauss's own interpretations of the aims of the analytical approach. Other interpretations of Grounded Theory have also been developed, such as Charmaz's Constructivist Grounded Theory (Charmaz, 2014). However, Adele Clarke (2003, 2005) criticised that Grounded Theory did not adequately address personal and social interactions between individual human actors, non-human actants and social/societal groups. Clarke's development of 'Situational Analysis', a heuristic device for mining qualitative data, was aimed at providing a scaffolded framework for identifying such social, societal and interpersonal interactions, and therefore gain further insights into the factors that influence individuals and their actions and perceptions. As a heuristic device, Situational Analysis is also extremely useful in problem-solving work-related or organisational problems. One area in which the use of Situational Analysis is particularly useful is in the consideration of factors affecting students' transition from High School to Higher Education. The transition period (typically the first year of university) is often problematic for students, adapting to a new environment, possibly living away from home, and adapting to different educational requirements to those of High School (MacNamara & Collins, 2010; Mendaglio, 2013). Identifying the key factors affecting students during this period can inform our approaches to supporting them, and so an evaluation of the human and non-human factors that impact on students is potentially highly beneficial.

The aims of this practice session are twofold: Firstly, by the end of the session, participants should have identified key social and experiential factors that impact upon new students as they make the transition from secondary to tertiary education. These insights will be developed at the end of the session into concrete approaches that can be used to support students during this transition process. Secondly, participants will be able to utilise Situational Analysis, in particular the drawing of Situational Maps, as a heuristic device to investigate either qualitative research data, or an area of their own professional practice. By using Situational Analysis, and discussing the outputs of the analytical approach with peers in the workshop, participants will be able to consider they key factors that might impact upon their own students during the transition to Higher Education. These insights will be extremely valuable for informing participants' own practice when it comes to supporting new students, and identifying potential areas of risk. Situational Analysis builds on the core tenets of Grounded Theory, of removing positivist preconceptions or hypotheses when analysing data. Instead the approach enables the data to reveal areas of interest that previously had not been considered or expected. Using Situational Analysis enables the researcher to expand this focus beyond

events and perceptions, and to focus on human (and non-human) impacts and relationships that might be key drivers in a particular situation. Therefore the core goal of this workshop is to introduce participants to an area of qualitative research which could deepen or enrich their own research practice.

Situational Analysis is a methodology by which social and societal interactions that impact upon a key situation or individual can be considered. Situational Analysis focuses specifically on the personal and social dimension of situations, and as such is useful for identifying social drivers in research data, but also for problem-solving organisational issues outside of research. Situational analysis involves the development of three core 'maps': Situational Maps (Clarke, 2005, pp. 86-109) aim to highlight the interactions between actors (individuals or collective groups) and actants (organisations, structures, systems and discourses) in a given situation. The production of a situational map involves the drawing of a 'messy map' which illustrates the potential actors/actants. This is then transferred into an 'ordered map' which aligns these factors under a range of categories. The aim of this approach is to identify the key nexus points around which the majority of social interactions associate. Social Worlds/Arenas Maps (Clarke, 2005, pp. 109-125) illustrate the interactions between collective groups. Social worlds are groups of actors, collective social networks, 'sites of action', and communities in which individuals act together. The Social Arena is a wider, more-conceptual area of practice or endeavour, which contains numerous different social worlds. The aim of this mapping process is to identify the ways in which these social worlds interact, and the impacts these have on other social collectives involved. Positional Maps (Clarke, 2005, pp. 125-136) aim to identify links, differences and commonalities between the stated, and unstated, positions taken by individuals involved. The positional maps aim to situate stated/unstated personal positions relative to two axes of factors. Positional Maps are therefore useful in devising diagnostic charts for person 'types' that are representative of the different dimensions of the characteristics represented on the axes. In this way they are somewhat similar to a more-nuanced version of Strauss and Corbin's analytical 'dimensions' (Strauss & Corbin, 1990, pp. 69-74).

The workshop will involve participants constructing 'messy' and 'ordered' Situational Maps, based on their own experiences of either their own transition to university, or their observed experiences of students undertaking the transition. Working in small groups of 2-4 individuals, using flipchart paper, participants will brainstorm the key factors, actors and actants which impact a student's daily experience. This 'messy map' will then be developed further into an ordered map, which places actors/actants into categories – such as individual human/non-human elements, collective elements, implied silent actors/actants, political/economic elements and sociocultural/symbolic elements. The third stage will then be to take each of these factors and identify linkages between them and all other factors, in order to identify nexus points or fundamental factors that significantly impact the situation. By working collaboratively, participants will develop a shared understanding of the situation, by experiencing multiple perspectives. The Situational mapping activity will be followed by a feedback session where the benefits and limitations of the process will be discussed. The plenary feedback will be followed by an exercise introducing participants to Social Worlds/Arenas mapping approaches and Positional Mapping. This introduction will involve a collaborative discussion of the pros and cons of these forms of map, facilitated by providing examples and discussing how these approaches might be applied. A final plenary discussion will highlight how Situational Analysis can be equally beneficial for analysing professional networks or problem-solving professional challenges, as well as analysing qualitative research data. By using situational mapping approaches, participants can identify key drivers, inhibitors and associated factors that otherwise might not have been considered with a plain-faced addressing of a situation or problem. The workshop therefore aims to be able to support qualitative analysis in various forms by the use of Situational Analysis.

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## **Improving Engagement Through the Use of Student Data**

Brett Jones, Virginia Tech; Stephen Biscotte, Virginia Tech

Researchers have identified specific principles that can be used by instructors to engage students. It is critical that instructors not only know these principles, but also collect student data that will allow them to most effectively implement these principles. The purpose of this session is to address both of these issues by (a) presenting research-based principles that lead to student engagement, and (b) giving participants a questionnaire that they can use in their courses to collect the student data needed to choose appropriate engagement strategies. We will discuss how we are working with faculty across departments at Virginia Tech to assess students' motivation, identify potential problem areas, and help faculty select appropriate strategies to motivate and engage their students. We hope that both novice and experienced instructors will benefit from the discussion of student engagement and assessment during the session.

Researchers in motivation science and various disciplines in psychology (e.g., educational, cognitive, developmental) have established a fairly strong base of literature that can be useful to instructors. To help make all this literature accessible to the instructors, Jones (2009, 2015) developed the MUSIC® Model of Motivation to synthesize and summarize the main principles from this research. 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: eMpowerment, Usefulness, Success, Interest, and Caring (MUSIC is an acronym that is used to help instructors remember these five components). The five key principles of the model are that the instructor needs to ensure that students: 1. feel empowered by having the ability to make decisions, 2. understand why what they are learning is useful for their goals, 3. believe that they can succeed if they put forth the effort required, 4. are interested in the content and instructional activities, and 5. believe that the instructor and others in the learning environment care about their learning and about them as a person (Jones, 2009, 2015). Instructors can assess their students' perceptions of the five MUSIC model components by using the MUSIC® Model of Academic Motivation Inventory (Jones, 2016). The MUSIC Inventory helps instructors determine their strengths and weaknesses related to motivating students by measuring students' perceptions of each of the five MUSIC model components. The MUSIC inventory has been shown to produce valid scores across many different types of college courses (Jones & Skaggs, 2016).

By the end of the session, participants who pay attention will: (1) have a better understanding of their strengths and possible weaknesses as a motivating instructor, (2) be able to describe some evidence-based principles of motivation science that explain why students are motivated to engage in their courses, and (3) have identified some teaching strategies that they can use to motivate their students.

The session will consist of the following sections. First, we will begin with an engaging in an interactive activity that helps faculty learn about their personal teaching strengths and weaknesses related to motivating students. They will complete a brief questionnaire related to one of their courses and we will tell them how to interpret their responses. This activity is intended to allow participants to think about their own teaching strategies. Second, we will discuss evidence-based strategies that can be used to motivate and engage students. We will tie these strategies directly to the results they obtained on their questionnaire. Third, we will ask them to work with a partner to identify strategies that they can use in their class to improve students' motivation. They will be asked to think about one of their own classes and share ideas directly related to their own course. Fourth, we will discuss how we have implemented these procedures at Virginia Tech with faculty from across campus. Finally we will answer any remaining questions from participants.

Most of the interactivity will occur in two parts of the session. First, near the beginning, participants will engage by completing the questionnaire. This activity will require them to think about one of their classes and respond to their perceptions of this class. Another interactive element is when participants discuss motivating strategies with one another that they intend to use in the future based on the results of the questionnaire. These activities will allow participants to apply the concepts from the session into their own teaching.

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## **Incorporating What We Know About (Game-Based) Learning Into 21st-Century Classrooms: Reacting to the Past and Engaging the Future**

Thomas Chase Hagood, University of Georgia; Naomi J. Norman, University of Georgia

This practice session considers powerful revolutions in American higher education pedagogies—namely, “gamification” and “collaborative learning.” It also asks participants to reflect on how institutions’ instructional support units and student success agendas can develop and equip faculty to engage high impact pedagogies when (re)designing their courses. In the first third of the session, participants will engage in an interactive discussion on the Reacting to the Past (RTTP) pedagogy, examining the presenters’ experiences with constructing faculty development partnerships and discuss the resultant faculty workshops, four-day summer institutes, fellows program, national conferences, campus workshops, etc. Participants will be asked to share their experiences, impressions, and questions. The last two-thirds of the session will shift from an overview of the pedagogy to a teaching and learning demonstration via a RTTP micro-game session. Participants will engage as students would within the game environment. At the close of the session, individuals will be asked to share their experiences, impressions, and questions.

The fusion of innovative instruction and faculty development has inspired a new, exciting, and rapidly expanding area of research and practice-based studies. Certainly, the learner-centered elements of gaming in higher education has received much scholarly attention. Gaming holds the potential to bring together the disparate worlds of critical (if liminal) learning environments, intrinsic motivation and meaningful, deep learning, no matter the academic discipline or topic (Bain, 2011; Doyle, 2011; Bonwell, 1991). That is, if the game is interesting, and perhaps, as José Bowen phrased it, “pleasantly frustrating” (Bowen, 2012; Gee, 2004). RTTP consists of elaborate games, set in the past, in which students are assigned roles informed by classic texts in the history of ideas. Class sessions are run entirely by students; instructors advise and guide students and grade their oral and written work. It seeks to draw students into the past, promote engagement with big ideas, and improve intellectual and academic skills (reacting.barnard.edu; Carnes, 2014). The results of this type of student-centered pedagogy is significant when considering course or programs designed specifically for first-year students (Lazrus and McKay, 2013). Implementing course redesigns with game-based pedagogies like RTTP can be a complicated process for even the most talented of teachers no matter the redesign’s active-learning benefits (Dyer, 2013; Bonwell and Eison, 1991). Nonetheless, the ability of this high-impact pedagogy to transform the experiences of students and faculty across multiple institution-types and instructional environments has been examined in recent empirical studies that illustrate the myriad potentials of game-based learning within undergraduate curricular reform (Hagood, et. al, 2018; Watson and Hagood, 2018).

In the first third of the session, participants will engage in an interactive discussion on the RTTP pedagogy, examining the presenters’ experiences with constructing faculty development partnerships and discuss the resultant faculty workshops, four-day summer institute, fellows program, national conferences, etc. Participants will be asked to share their experiences with similar pedagogies or faculty development work. The last two-thirds of the session will shift from an overview of the pedagogy to teaching and learning demonstration via a RTTP micro-game session. Participants will engage as students would within the game environment. At the close of the session, individuals will be asked to share their impressions and questions.

The presenters will guide session participants through the evolution of RTTP’s history and its current existence—as a national consortium and within their institution. The first portion of the session will ask participants to suspend their thinking on the traditional lecture-as-teaching and explore the world of gaming in higher education via RTTP. What does the practice look like? What do students do? What do instructors do? What resources exist if I were to use Reacting in my classroom? Hagood and Norman will share a brief presentation including student videos from their experiences so that individuals can observe their faculty development practices. The bulk of the session will be devoted to a teaching and learning demonstration via a RTTP micro-game where participants will engage as students would within the game environment. Given the high-impact and de-centering aspects inherent in RTTP, participants will be asked to discuss how this model of collaborative learning could be adopted in various classrooms and institutions.

This practice session is a product of ongoing collaboration between the UGA Reacting to the Past program and the Center for Teaching and Learning (CTL), a departmental unit within UGA’s Office of the Vice President for

Instruction. Since Fall 2013, Hagood and Norman have planned and executed faculty development and pedagogically-transformative experiences around RTTP and they have been quite successful. As long-time adopters of the pedagogy, Hagood and Norman have designed and offered campus workshops, regional institutes, and national conferences to attract and equip faculty who seek to involve students (and themselves) with deeper, more engaging active-learning strategies, yet, were unfamiliar with RTTP. This session has a high level of interactivity among participants.

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- Lightcap, T. (2009). Creating political order: Maintaining student engagement through “reacting to the past”. *PS: Political science and politics*, 42(1), 175-179.
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## **Inviting a Culture of Teaching Collaboration and Excellence through Faculty Development**

Tracy Smith, Appalachian State University; Emory Maiden, Appalachian State University

As teaching loads increase and demands for research and service intensify, it's easy for faculty to overlook the importance of sustaining their professional development related to teaching excellence. In this session, participants will examine the characteristics and assumptions of an Invitational Theory (IT) approach to faculty development in teaching. IT acknowledges and values human potential and discourages approaches to teaching or educational development that use manipulation, technical training, coercion, and external incentives. Together, presenters and participants will discuss emerging options for using campus and online resources to cultivate an invitational approach to faculty development in teaching. The session is suited for new faculty, mentors, administrators, seasoned faculty, and educational developers.

Invitational theory (Novak, Armstrong, & Browne, 2014; Purkey, 1978; Purkey & Novak, 1996; Purkey & Siegel, 2013) is rooted in foundations of democratic ethos, self-concept theory, and perceptual tradition. It seeks to both explain and provide a means of intentionally inviting people to realize their highest potential in all areas of human endeavor. Invitational Theory includes the elements of care, trust, respect, optimism, and intentionality that can inform an educational developer's approach to program development. Too often, faculty development sessions provide short-term technical solutions (e.g., clarifying a syllabus, integrating mobile devices in class, fostering student participation), but do not offer sustained opportunities to examine and reflect on "individual beliefs, experiences, and research regarding learning" (Layne, Froyd, Morgan, & Kenimer, 2002). For decades, scholars have heralded the importance of sustained faculty development (Camblin & Steger, 2000; Graziano & Kahn, 2013; Hageseth & Atkins, 1988; Hubbard & Atkins, 1995; Hynes, 1984; Layne, et al., 2002). Faculty development programming that is sustained requires intentionality, inviting faculty into prolonged learning and growth. The benefits of sustained faculty development include increased student learning and satisfaction (Grubb & Associates, 1999); improved faculty performance as scholars, advisors, academic leaders, and contributors to institutional decisions (Camblin & Steger, 2000); and increased faculty well-being and institutional quality of life, including opportunities for growth and career rejuvenation (Hageseth & Atkins, 1988; Hubbard & Atkins, 1995). Invitational learning and sustained faculty development are increasingly seen in initiatives such as faculty learning communities, reading groups, and mentoring networks. Purkey and his colleagues have articulated five basic assumptions that are essential in understanding Invitational Theory (IT): 1. People are able, valuable, and responsible and should be treated accordingly. 2. Educating should be a collaborative, cooperative activity. 3. The process is the product in the making. 4. People possess untapped potential in all areas of worthwhile human endeavor. 5. This [untapped] potential can best be realized by places, policies, programs, and processes specifically designed to invite development and by people who are intentionally inviting with themselves and others, personally and professionally.

In this session, the presenters will frame a conversation providing connections between each of these Invitational Theory assumptions and scholarly thinking about educational development. We will provide examples of how each of these assumptions might be enacted in invitational educational development and then invite attendees to offer their thoughts, ideas, and examples. The primary outcome of this session is that participants will leave the conversation session with an understanding of invitational theory applied to faculty development in teaching excellence as well as 2-3 new faculty development ideas to consider for themselves or others. Session goals include the following: •Examine the primary assumptions of Invitational Theory and their application to faculty development in teaching excellence. •Discuss the benefits, challenges, and complexities of providing quality faculty development related to teaching. •Share and document together the salient models and concrete ideas that emerge from the conversation and use document sharing to make them available to participants.

In this session, the presenters will frame a conversation providing connections between each of these Invitational Theory assumptions and scholarly thinking about educational development. We will provide examples of how each of these assumptions might be enacted in invitational educational development (e.g., reading and study groups; co-teaching; teaching and scholar exchanges) and then invite attendees to offer their thoughts, ideas, and examples.

•Introductions: Name, Position, Institution, One word about how you feel about faculty development related to teaching at your institution. (2 minutes) •Five minute focus writing. On two-columned paper provided, participants will write in Column 1 a list of things they would like to learn, research, or explore professionally this year. In Column 2, they will write methods they might use to access the new learning. (5 minutes) •Sharing of personal

approaches to professional learning from focused writing. (5 minutes) •Presenters provide an introduction to the five assumptions of Invitational Theory, related to faculty development in teaching and 1-2 examples of a way to apply that assumption in development programming. A handout will include the assumptions, associated applications, and space for participant notes. (20 minutes) •Attendees share their thoughts and models. NOTE: Presenters will add to the list/handout provided and share the updated resource through the CHEP author portal. (15 minutes)

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**Learner-Centered Design: Engaging Every Student with Active & Adaptive Learning**  
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### **Learning Theory Redux: Putting Theory Into Practice**

Mariah Rudd, Virginia Tech Carilion School of Medicine; Gerald Denton, Ochsner Health System; Emily Holt, Virginia Tech Carilion School of Medicine; Shari Whicker, Virginia Tech Carilion School of Medicine; Chad DeMott, Virginia Tech Carilion School of Medicine

This workshop will provide much needed guidance on how to apply validated learning theories, like cognitive load theory, metacognition, spaced repetition and deliberate practice into clinical learning situations. Our session will provide an overview of evidence-based learning theories and give attendees the opportunity to apply these learning theories in small groups with interactive discussion. By the end of this workshop the participants will be equipped with multiple techniques to apply validated learning theories and to help their learners better retain the vast amount of information presented in diverse clinical settings.

In the clinical phases of their education, students and residents sometimes struggle to apply their well-developed book knowledge into hands-on practice. Additionally, learners face time constraints and a new rapid flow of information from their clinical experiences. More and more frequently, lectures are seen as an inefficient way to convey knowledge. Furthermore, written and verbal feedback often encourage learners to “read more” when more advanced strategies to assist learners in processing and retaining knowledge exist.

Apply cognitive load theory and metacognition to enhance medical education. Modify their curriculum to incorporate more effective long-term learning strategies. Teach using spaced repetition, deliberate practice, testing effect, and reflective practice.

The current educational atmosphere in many residencies and clerkships emphasizes lecture based delivery and independent reading. Reflection upon how learners most effectively incorporate new information can enhance learning. This workshop will connect various learning theory approaches to learning effectiveness in medical education. This workshop will include expert facilitated small group activities as well as large group discussions. Workshop participants should expect to leave this session with an enhanced understanding of learning theories and practical ways to incorporate them into their teaching of medical education learners. Tangible deliverables for workshop participants include: 1. Handout outlining examples for incorporating various learning theories into everyday clinical teaching. 2. Specific references for discussed learning theories.

Large group discussion: Expert facilitators will lead participants through a discussion of several learning theories that can be applied to medical education. Small group activities: Workshop participants will work in small groups to apply specific learning theories to educational scenarios to enhance learning. Each group will report to the larger group to share their proposed application of the learning theory.

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**Looking In and Owning Up: Identifying and Countering Cognitive Bias in the Classroom**  
Kim Becnel, Appalachian State University; Jon Pope, University of North Carolina - Charlotte

In response to the increased attention to phenomena such as “fake news” and “alternative facts” since the last election cycle, educators at all levels and across disciplines have dramatically stepped up efforts to cultivate basic information literacy skills, especially prioritizing the careful evaluation of information sources. While source evaluation skills are essential, the recent emphasis on them is predicated on a model of research behaviors that assumes that, given the right tools, the readers of these online sources are capable—and desirous—of making informed, objective judgments about the credibility of an external information source. Rhetorical theories, however, suggest a different model, one that understands communication as a set of complex negotiations among authors, texts, and audiences and that imagines readers engaged in ongoing identity construction within the context of discursive transactions. One of the most influential, and yet least visible, identity elements that readers bring to bear on a text are their cognitive biases. These biases often prove more important in the determination of textual reliability than any external features of the text itself. In this presentation, we will demonstrate activities designed to help students, researchers, and readers identify, understand, and minimize the effects of their own cognitive biases.

In *Everyday Bias: Identifying and Navigating Unconscious Judgments in Our Daily Lives*, Howard J. Ross (2014) writes: “Unconscious influences dominate our everyday life. What we react to, are influenced by, see or don’t see, are all determined by reactions that happen deep within our psyche. Reactions which are largely unknown to us” ( p. 2). Scholars in many disciplines have begun to explore tools for combatting bias in the educational environment through strategic classroom exercises, training sessions, and computer games and simulations (Fay & Montague, 2015; Katz & Ain Dack, 2014; Lee et al., 2016; Poos, Van den Bosch, & Janssen 2017). To combat ingroup and diagnostic bias, in particular--which can cause us to misinterpret other’s communications or actions based on real or perceived cultural differences--it can be helpful to focus on developing cultural competence, which involves training students to recognize and respect cultural differences and to successfully navigate them (Berardo & Deardorff, 2012). While scholars and educators may advocate for different strategic approaches, the consensus is that when we better understand how our brains make irrational leaps and complex contortions to help us make sense of the world, we can work toward more logical and intentional interpretation and decision making in our lives as readers, scholars, and fellow human beings (Ariely, 2009; Blakesly, 2016; Ross, 2014).

--Participants should understand that cognitive biases are patterns of irrational judgments and decisions based on unconscious influences and processes. --Participants will be able to discuss the potential impacts that various types of cognitive bias can have on individuals as readers, students, researchers, and teachers, as well as on larger groups and society as a whole. --Participants should be able to describe various types of cognitive bias, including confirmation bias, ingroup bias, selective attention, and diagnostic bias and identify examples of each. --Through a series of interactive exercises, participants will begin to recognize some of their own cognitive biases.. --Participants will learn some tools and strategies for helping students identify and combat cognitive bias.

We will focus on the practice of intentionally and directly addressing cognitive bias in the classroom through a series of large and small group interactions, individual exercises, and self-reflection assignments. Because cognitive biases can have such a dramatic effect on a student’s ability to objectively evaluate sources and arguments, embedding work on identifying and combatting selection bias, confirmation bias, ingroup bias, and diagnostic bias can enhance a student’s performance in all manner of subject areas, including writing, communication, information literacy, history, science, and more. For us, the most effective way to address bias has been to employ a combination of techniques, involving large and small group exercises and individual self-examination and reflection, throughout the course of a semester, building students’ understanding of and facility with these concepts over time. We will discuss and demonstrate the specific techniques we use in our courses, inviting the group to participate in several exercises in order to experience their powerful effects first-hand.

Participants will be asked to participate in several activities we use with students for identifying bias and cultivating cultural competence. For example, we will have the group watch a video called “The Monkey Business Illusion,” which tests viewers observational skills and very cleverly demonstrates the natural human tendency toward selective attention. We will use this experience to generate a discussion of this particular bias, the effects it might have in the

classroom and beyond, and the usefulness of the video and other, similar tools in identifying and countering the tendency toward selective attention. Another activity we will engage in involves providing the group with a hand-out featuring a short primary document describing a historical encounter between a Caucasian explorer and a native tribe on the Congo River. Unbeknownst to them, half of the group will get the story as told by the explorer, and the other half will get the story as told by a member of the tribe. We then ask the group to discuss what happened, facilitating discussion as participants realize that they have the story from different viewpoints, along with the implications of narrative and cultural perspective. Finally, we will solicit ideas from the group to add to the list of individual exercises and online resources and tools that we have prepared to share.

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## Low-Stakes Writing to Facilitate Higher-Order Thinking

Christine Joseph, East Carolina University; Jessica Chittum, East Carolina University

Writing in many forms is considered an important fixture across disciplines. Writing Across the Curriculum (WAC) is a response to a perceived need for literacy instruction among college students, and maintains that writing is a valuable learning tool that can facilitate higher order thinking skills such as synthesis, analysis, and application of course content (Romberger, 2000). Writing to Learn (WTL), another writing-focused educational initiative, encourages instructors to leverage writing to support students as they uncover content, make connections with prior knowledge, unearth new ideas and understandings through the writing process (Nagin, 2003), improve metacognitive skills, and facilitate reflection (Brewster & Klump, 2004). A method for supporting WTL on the WAC premise is low-stakes writing (i.e., a type of freewriting that is used more informally and tends to be ungraded), the focus of this presentation, which we posit can be used to facilitate cognitive processes and, in particular, higher order thinking processes like the aforementioned. In particular, low-stakes writing can reduce some of the anxiety that is often associated with graded writing tasks while maintaining and facilitating rigorous complex cognitive processes (Elbow & Sorcinelli, 2006). A theoretical foundation for focusing low-stakes writing on higher-order thinking tasks is grounded in decades of research and theory, such as constructivist learning principles, social, student-centered learning, complex cognitive processes, and long-term retention and transfer (Barr & Tagg, 1995; Brooks & Brooks, 1999; Halpern & Hakel, 2003; Hmelo-Silver, 2004; von Glasersfeld, 1995; Vygotsky, 1962). In this presentation, we will discuss how low-stakes writing prompts can assist instructors in assessing understanding from a formative perspective. Our focus will be on prompts for introduction and practice of content, and summative review. During the presentation, we will share exemplars of how we use the course texts and objectives to guide our design of the prompts in our courses for pre-service teachers. The presenters have implemented these prompts using an instruction resource guide in their courses and researched its usefulness across disciplines and educational levels. The culminating activity will be constructing low-stakes prompts within the participants' courses.

The lenses of two theoretical perspectives—cognitive and social—in writing will guide the practice session. From a cognitive perspective, Vygotsky (1962) noted that writing makes a unique demand in that the writer must engage in “deliberate structuring of the web of meaning” (p. 100). In support of this perspective, organizations (e.g., NCTM, NRC, Writing to Learn [WTL] activities—stemming from a 1983 movement Writing Across the Curriculum [WAC] and the National Writing Project [Nagin, 2003]) recognize writing as a tool for acquiring knowledge in the content areas. Vygotsky (1962) also noted how written language requires higher cognitive functions because a writer must also make a conscious attempt to portray meaning with the written symbol, wholly and intelligibly explaining it to a non-present reader. A method for supporting WTL on the WAC premise is low-stakes writing (i.e., a type of freewriting that is used more informally and tends to be ungraded), the focus of this presentation, which we posit can be used to facilitate cognitive processes and, in particular, higher order thinking processes. In particular, low-stakes writing can reduce some of the anxiety that is often associated with graded writing tasks while maintaining and facilitating rigorous complex cognitive processes (Elbow & Sorcinelli, 2006). The theoretical foundation for focusing low-stakes writing on higher-order thinking tasks is grounded in decades of research and theory, such as constructivist learning principles, student-centered learning, complex cognitive processes, and long-term retention and transfer (Barr & Tagg, 1995; Brooks & Brooks, 1999; Halpern & Hakel, 2003; Hmelo-Silver, 2004; von Glasersfeld, 1995). From a social perspective, writing has the potential to facilitate communication. For example Englert, Mariage, and Dunsmore (2006) note the importance of Vygotsky and Bahktin's views of the social implication. In addition, justifying and explaining problem solutions have the potential to enrich oral conversations (Baxter, 2001). These perspectives in writing theory provide a lens for understanding the cognitive and social implications of investigating the benefits of low-stakes writing used in our coursework to facilitate higher order thinking.

We aim for each participant to leave with one or more low-stakes writing prompts that can be used in their courses (or with working knowledge that can be shared with colleagues who teach in order to support them in developing prompts for their courses). Our objective is also that the participants will demonstrate use of a higher-order thinking focus when developing writing prompts. The goals and objectives of this session also align to the Quality Enhancement Plan (QEP) of many institutions—writing. For example, at our institution this plan has an overarching

goal of improving student achievement and learning across the institution by way of improving writing instructional practice. As such, writing instruction is a key ingredient aimed at improving student learning using the process of writing to integrate, align, and reinforce course content. This session is intended to continue that message by offering professional development in teaching focused on low-stakes writing practices that can be utilized across domains and courses.

In this presentation, we will discuss how low-stakes writing prompts can assist instructors in assessing understanding from a formative perspective. Our focus will be on prompts for introduction and practice of content, and summative review. During the presentation, we will share exemplars of how we use the course texts and objectives to guide our design of the prompts in our courses for pre-service teachers. The presenters have implemented these prompts using an instruction resource guide in their courses and researched its usefulness across disciplines and educational levels. The culminating activity will be constructing low-stakes prompts within the participants' courses.

Participants will be engaged in anticipation guide questions at the beginning of the session, which will involve think-pair-share collaborative discussion to prime the group for the session. During the session, we will talk about the importance of the student affordance for the task when constructing their prompts, and at that time we will discuss as a group how that can vary per field. There will also be various times when participants can share their ideas, such as when we ask about resources they might use when creating prompt (e.g., textbooks and supplemental materials they have on hand), understanding that this can vary widely based on each participant's discipline. The crux of the session will be the practice component: We will ask the participants to work together in small groups (or individually—their choice) to develop and share writing prompts at the end of the session, and to share their work with the group at large.

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## Measuring Transparency: A Learning-Focused Assignment Rubric

Michael Palmer, University of Virginia

By combining recommendations for effective assignment design with principles of transparency and the value-expectancy theory of achievement motivation, we have developed the first rubric that can guide the design and assessment of learning-focused assignments as well as for assessing them. This rubric defines broad criteria characteristic of well-designed assignments, breaks the criteria down into a set of concrete, measurable components, and suggests what evidence for each component might look like in an assignment description. In this session, participants will explore and then apply the rubric to a range of assignment descriptions so that they might use it for the development or improvement of their own assignments.

A number of excellent texts exist to help educators develop meaningful assignments that foster deep approaches to learning (for example, Wiggins, 1998; Nilson, 2010; Walvoord & Anderson, 2010; Bean, 2011). Some of the recommendations include: aligning the purposes of assignments with learning objectives; ensuring authentic performance; scaffolding complexity; developing and sharing standards and criteria; providing immediate, discriminating, and forward-looking feedback; and giving students opportunities to self-reflect and use feedback to improve future performance. One consistent theme running through these recommendations is the characteristic of transparency. In higher education teaching and learning contexts, transparency is the act of making explicit to students the underlying—often hidden—features of the learning environment (Winkelmes, 2015). Winkelmes and colleagues argue that transparency is connected to explicit definitions and articulations of an assignment's purpose, tasks, and criteria. In a multi-institutional study involving 35 instructors and 1,800 students, they found that students who perceive a greater degree of transparency in their course assignments report significant gains in academic confidence, sense of belonging, and mastery of the skills that employers value most when hiring. The value of these gains is reinforced by other studies that have connected academic confidence and sense of belonging with greater persistence, retention, and higher grades (Aronson, Fried, & Good, 2002; Paunesku, 2015; Walton & Cohen, 2011). By underpinning Winkelmes' (2016) articulation of transparent assignments with the theoretical framework of value-expectancy theory of achievement motivation (Wigfield & Eccles, 2000), we have extended the definition of transparency to define learning-focused assignments.

During this interactive session, we will 1) introduce participants to the salient features of transparency in assignment descriptions, 2) briefly discuss how transparency connects to value-expectancy theory of achievement motivation, 3) describe the key constructs of the rubric we have developed to measure the focus of assignment descriptions, 4) engage participants in applying the rubric to a several assignment descriptions, and 5) open up discussion about ways the rubric can be used for both formative and evaluative purposes. As a result of this session, participants will be able to: ? Describe the key features of learning-focused assignments; ? Apply our learning-focused assignment rubric to a range of assignment descriptions; ? Consider ways our rubric might support their own work.

Our learning-focused assignment rubric was designed to help quantitatively and qualitatively assess the descriptions of major, or “signature,” assignments. It accounts for nuances in assignments while also maintaining widespread relevance to courses in a diverse range of disciplines, levels, and institutions. The rubric focuses on four criteria characteristic of learning-focused assignment descriptions: (1) purpose, (2) task(s), (3) criteria/assessment, and (4) additional learning-focused qualities. These criteria do not necessarily map onto any specific section of an assignment description; instead, users of the rubric are directed to search for evidence of the quality of all criteria across the document. We break down each criterion on the rubric into multiple components. The four components in the purpose section describe the ways in which the assignment description articulates what knowledge or skills students will gain and what practice they will get. The five components in the task(s) section describe the ways in which the assignment description articulates the steps required to complete the assignment and how students might best approach them. The five components in the criteria/assessment section describe the ways in which the assignment description articulates what excellent student work looks like and how their work will be assessed. Finally, the five components in the additional learning-focused qualities section describe the ways in which the assignment description attends to organization, motivation, inclusivity, and other learning-focused principles. In this session, participants will apply the rubric to a range of assignment descriptions so that they might use the rubric for the development or improvement of their own assignments.

After some initial framing remarks about transparent assignment descriptions and connections to value-expectancy theory of achievement motivation (10 min), participants will explore our learning-focused assignment rubric by applying it to two assignments on the opposite ends of the continuum (30 min). The remaining time will be spent in a large-group discussion, focusing on possible uses for and opportunities and challenges of using the rubric (10 min).

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- Winkelmes, M.-A., Bernacki, M., Butler, J., Zochowski, M., Golanics, J., & Weavil, K. H. (2016). A teaching intervention that increases underserved college students’ success. *Peer Review*, Winter/Spring.
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## **Navigating the Space: Using Social Tensions to Teach Concepts, Civic Responsibility, and Interdisciplinary Perspectives**

Jena D. Morrison, Richard Bland College of the College of William & Mary

The purpose of this session is to illustrate how current events and social research can lead to a class discussion that allows students to make connections between the textbook and reality and between subjects in such a way that encourages them to be more socially aware and civically engaged within both the local and global community. Following the initial presentation, interactive conversation in this session will cover how this particular class activity can be modified for use within other disciplines as is relevant to their needs and learning objectives and for building interdisciplinary connections. This session will culminate in a conversation about taking this lesson plan to the next step in assignment creation, teaching civic responsibility, and supporting service-learning as both an idea and in any existing programs at institutions of higher learning. Handouts included will consist of a bibliography of pedagogical literature relevant to the presentation, a synopsis of the sociological terms utilized within the original class activity, and a detailed outline of the original class activity including the critical thinking prompts within the class discussion and suggestions for implementation within different disciplines.

According to Palpacuer-Lee and Curtis (2017), “The capacity to mediate intercultural (with others) and intracultural (with self) encounters in diverse classrooms has recently become an imperative in teacher education worldwide (p.164).” As students require an increasing level of skill in navigating interpersonal situations both locally and globally, there is a necessity to build these skills within the space of the classroom and connect this objective to learning both at the individual class and larger collegiate level. It is also necessary to teach students to become global citizens engaging in civic responsibility through dialogue surrounding intercultural events and diverse populations. By engaging in these conversations, students learn how to understand and negotiate ideologies, varying agendas, and subjectivities throughout times, space, and narratives embodied by others and within themselves (Palpacuer-Lee & Curtis, 2017). Through a better understanding of how an individual’s ideas, background, biases, and social self are presented to the world as posited by Goffman (1959), a more exhausted analysis of the social interactions and transactions that occur during community demonstrations can occur. This allows the student the opportunity to engage in a study of current events from an interdisciplinary perspective which provides both personal relevance and a sense of civic responsibility.

The purpose of this session is to illustrate how current events and social research can lead to a class discussion that allows students to make connections between the textbook and reality and between subjects in such a way that encourages them to be more socially aware and civically engaged within both the local and global community. Participants will learn how to utilize an event within their own community to build a class discussion that allows students to apply course concepts, make connections between disciplines, and to develop the tools needed to be civically responsible and socially aware within their own community. Participants will leave with a list of ideas and ways that this exercise could be applied to their own classrooms and meet the learning objectives of their own courses. Additionally, this session will provide an opportunity for participants to see how a current event could be used for interdisciplinary research, capstone projects, and service-learning within their own institution. Discussion will center around the application of controversial topics as a springboard for taking the class content beyond the textbook, across learning communities, and into the building of skills for global citizenship.

By utilizing an example of a local event, the protests of the Confederate monuments held in Richmond, Virginia on Saturday, September 16th, students were provided with an opportunity to see how the practice of field research in the social sciences occurs taking this notion outside of the realm of the textbook and into one of practical application and personal relevance and civic engagement. This demonstrated an objective approach to the study of a highly controversial topic that is of current relevance throughout the entire country and led to a discussion of how privilege and impression management influence the navigation of space and ideologies, particularly in situations where diversity, hostility, and the potential for violence exists. This conversation evolved into one that was interdisciplinary, allowing students to make connections between various classes and subjects while encouraging them to become more aware and civically engaged within their own community. Topics discussed during the class included privilege, field research, the necessity of being value-free in research, racism, intergroup interactions, navigation of social space from both a micro and macro level, Goffman’s (1959) presentation of self, criminal deterrence, language, emotion management, and the breaking down of existing prejudices and barriers through a

practical application of Allport's contact hypothesis (Dovidio et al., 2005). By utilizing this approach to the study of controversial topics and events that are current and relevant within national and global communities, students can gain a sense of what it means to be a global citizen and develop an interest in becoming an active member of the larger community.

At the end of the presentation of how this scenario was used to demonstrate to students the intricacies of field research, privilege, and Goffman's impression management, the remainder of the session will be filled with an interactive discussion of how examples of current events can be used to meet the learning objectives in other disciplines. This will include how this example and others can be used for lessons on rhetoric, coding, language, historical argument, case studies in psychology, cross-jurisdictional cooperation, jurisdictional procedural criminal law, etc. Participants will leave with an idea of how to utilize social research and social interaction in everyday life within their own field, how interdisciplinary work can be used to build student understanding, and new tools and practices to implement within their own classrooms. Additionally, this conversation will lead to a deeper discussion of how this particular assignment can be built into other assignment formats, teach civic responsibility, and promote community-based service-learning in undergraduate students.

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## **Negotiating Cultural Border-Crossing and Planning Experiences for Empowerment through Science Education**

Mae Hey, Virginia Tech; Sam Cook

Science is a distinct culture in that it has established norms, values, beliefs, expectations, and conventional actions. No one is born into the culture of science, but the core requirements of most educational programs require students to acquire an understanding of science to graduate. Therefore, part of a science teacher's job is to mentor students through the necessary border-crossing between the native culture of students and the culture of science. To facilitate this process, teachers need a way of framing how students can access science to meet their individual needs; understanding cultural borders that exist between science and students can help teachers mentor students in crossing these boundaries. Additionally, a simple framework can be used to enhance curriculum that supports student engagement with science and development of their identity as unique contributors to a more sustainable world. This session provides models for understanding how to enhance student access and engagement with science through the mentorship and learning experiences teachers orchestrate. That said, participants should attend the session with a specific science lesson, unit plan, or course outline they feel needs work to optimize learning potential.

Pioneer in cultural anthropology, Clifford Geertz defines culture as a framework for processing the world through a specific set of "norms, values, beliefs, expectations, and conventional actions" (Phelan, Davidson, & Cao, 1991, p. 228). That said, science is a culture and "to learn science is to acquire the culture of science" (Aikenhead & Jegede, 1999, p. 274). These attributes of science can make it a daunting foreign culture in which many students find it difficult, if not impossible, to participate (Maddock, 1981). The reasons for this vary. Some students may have trouble understanding the culture of science due to vast differences between it and their own, while others may find it to be so strange that they refuse to align their thinking with it (Aikenhead & Jegede, 1999). That is, when Western science is positioned as a "non-humanistic, objective, purely rational and empirical, universal, impersonal, socially sterile, and unencumbered by human bias, dogma, judgments, or cultural values" especially while acknowledging the involvement of a scientist, it is a ridiculous mythology for some to consider valid enough to incorporate into their worldview (Aikenhead, 2001, p. 337). This level of differentiation seems impossible within a single curriculum that is already attending to other needs associated with equal access to education. However, it can be managed through creating flexible learning opportunities for the development of relationships as well as interaction with the content (Aikenhead & Jegede, 1999). This allows mentors and students to come to know each other's perspectives and how they relate to sense-making experiences. This fosters a spectrum on engagement with the culture of science that could range from an emersion of ideology, a weaving of perspectives, or simply an appreciation of another way of viewing the world, but in each instance, all types of knowledge are valued equally (Aikenhead, 2001).

Participants in this session will gain an understanding of cultural border-crossing in science education and its role in creating learning experiences that foster empowerment and sustainability. Additionally, they will have opportunity to strategize the alignment of curriculum with this perspective through a supported session of re-tooling a class each participant personally teaches. Participants will leave with experience using the concepts presented applied directly to their own teaching.

A model (Hey, 2017, p. 142) was created to guide the creation of science learning experiences and will be shared during the session. It is a guide to support the engagement of natural learning instinct, balanced experience, individualized/ hybridized identity development, and sustainable community building to optimize learning opportunities in science education. It is a visual developed to support the needs of busy and intelligent practitioners in open-ended professional empowerment. When beginning lesson enhancement using this model, the practitioner begins in the upper left quadrant of fostering natural learning instinct by following a 5-e model (engage, explore, explain, extrapolate, and evaluate), a management plan (support for engagement, behavior, and organization), and relevant assessment for empowerment. Once in place, balance can be orchestrated by examining how cognitive, physical, social, and emotive needs are being met. Next, strategies to build identity can be put in place, creating experiences that are concrete before abstracted (experiential before described), are generative (original works are created), follow critical thinking protocols (observe, infer, analyze, and question existing theory), and used within the community are built into the learning experience. Finally, the practitioner facilitates the positioning as Nature as the primary instructor to teach community building and sustainability through looking for connections between Natural Law and sustainability.

In this session, ways of negotiating cultural border-crossing will be discussed. With an appreciation for how each student is a unique being with different ways of accessing and interacting with science, we will consider the courses participants teach and brainstorm strategies that can align curriculum with this perspective. That is, after a brief introduction, participants will work together and with the facilitator on enhancing a specific science lesson, unit, or course outline they feel needs work to make learning accessible to all students.

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## Online Peer Assessment: What Tools Are Available?

Edward F. Gehringer, North Carolina State University

Peer assessment is a practice that has found wide use across the curriculum. Virtually all LMSs have peer-assessment modules. But standalone peer-assessment applications tend to have features that provide better support for the pedagogy. What factors are important in choosing a peer-assessment application? Some apps have students rate each other's work; other apps have students rank one author's work against another. Some applications make it easy to construct detailed rubrics. To induce students to take sufficient care in reviewing, it is important for a system to include some kind of quality-control mechanism. Students may undergo a "calibration" to measure how well their reviews compare to "expert" reviews. Authors may be asked to rate the reviews given to their work. Or, instructors may rate the reviews in batch format, in order to save time in grading. Several systems endeavor to keep students honest by combining peer review and self-review; students are rewarded when their self-review is "close enough" to the peer reviews of their work. Finally, applications provide many ways of visualizing the large amount of feedback that the peer-review process generates.

Peer review in higher education has been studied since the 1970s (Topping, 1998). In the last twenty years, online peer-assessment applications have proliferated. Several studies have covered specific applications (Doiron 2000, Bouzidi & Jaillet 2009, Luxton-Reilly 2011), but these are all several years old, and the field has advanced since then. Specific aspects of online peer assessment have been studied since then, e.g., strategies for improving the quality of peer reviews (Gehringer 2014, Patchan, Schunn & Clark 2017), but no comprehensive study has appeared. Systems are designed in widely varying ways, making it difficult to characterize systems (Sondergaard & Mulder 2012).

1. To introduce instructors to the capabilities of online peer-assessment applications 2. To show how a peer-reviewed assignment can be structured to give reviewers an opportunity to interact with authors throughout the writing process. 3. To show how various systems help students write good peer assessments. 4. To highlight different systems that focus on different goals for peer review (e.g., peer review of case studies, peer review of teammates' contributions to group projects). 5. To help educators choose an appropriate peer-assessment application for their course.

The session will begin with an interactive discussion of the benefits of peer review in a variety of educational settings, including formative and summative uses. It will then explore the differences between systems based on rating classmates' work and systems based on ranking artifacts against each other. Rating-based systems make it easier to use a detailed rubric, whereas ranking-based systems tend to produce more reliable, repeatable assessments. A system may combine rating and ranking in an effort to achieve some of the advantages of both. Next, the presentation will focus on support for rubrics. It will highlight the different kinds of rubric criteria that are supported by different systems, show how rubric "advice" (sometimes called an "anchored scale") can be provided to promote more reliable ratings, and discuss how the length of a rubric may affect the results of the assessment. There are several approaches to promoting high-quality reviews. Calibration runs reviewers through a training course, asking them to review work that has already been reviewed by experts. A reviewer whose score agrees with the expert review is accorded more credence in reviewing his/her peers. Another strategy has authors review the reviews of their work (sometimes called "rejoinders" or "back-reviews"), and factors these author ratings into the students' grades. At least one system provides a specialized interface to allow instructors to assess multiple reviews concurrently, saving grading time. Self-assessment is an important part of the review process in several systems. Typically, a system awards points to student authors depending on how well their (the author's) assessment of their work correlates with ratings received from their peers. Calibrated Peer Review, for example, has students review their own work before they can see the reviews received from their peers. Then the correspondence between self-ratings and peer ratings is factored into their grade. The SPARKPlus system tries to promote honesty in self-review by showing the instructor and the student's teammates the ratio of the student's self-assessment score to the scores received from the student's peers. Finally, the talk will showcase some innovative ways of presenting the rich data collected by the peer-assessment process. The Mobius SLIP application computes metrics called "bias" and "controversy" by comparing ratings of the same work given by different raters. The Expertiza system provides a "heat map" of all reviewers' responses to each rubric criterion, and allows the student or instructor to hover a mouse over any cell in the matrix to see the textual explanation, if any, associated with that score. Two ranking-based

systems use a “rainbow chart” that graphically displays where each submission ranks in a global ranking developed from the individual rankings provided by each reviewer. A previous presentation of a similar talk provoked a number of questions throughout the hour. The author has been studying and building peer-assessment applications for many years, and will relish the opportunity to share his knowledge and insights with the audience.

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### **Pedagogy at the Heart of Teaching and Learning: Facilitating Discussion with Intentionality**

Brian Sohn, Carson Newman University; Katherine Greenberg, University of Tennessee; Neil Greenberg, University of Tennessee; Sandra Thomas, University of Tennessee; Brenda Murphy; Kristina Plaas; John Smith; Lauren Moret

In this session, the authors will lead participants in exploring five qualities of perception that contribute to pedagogy at the heart of teaching and learning: sociocultural embeddedness, embodiment, intersubjectivity, ambiguity, and descriptions of experience. These ideas are informed by our research studies of the lived experience of teachers and students and the field of existential phenomenology, most especially Merleau-Ponty's (1945/62) ideas about the primacy of perception. In small groups, participants will share ways they do or could use these qualities to help students connect personal experience to abstract course content.

Achieving quality classroom dialogue is more difficult than discussion. By discussion we are referring to the act of stating one's positions, advocating convictions, convincing others, and building opposition. The results of discussion might be short term resolutions, logical agreement, beating down the opposition, and further cementing of mindsets. In dialogue, we believe feelings are revealed, assumptions are explored, convictions are suspended, common ground is sought. The results are durable learning, a sense unity with the group, development of shared meaning, and transformed mindsets. As early as 1976, Karp and Yoels identified the "consolidation of responsibility" that occurs in most college classrooms. A few students seem to dominate discussion. More recent results (Fritschner, 2000; Galanes & Carmack, 2013) provide more nuance to the problem—in upper level classes we find more students participating, for example. But the issue remains: even in upper level courses no more than around 60% of students contribute (Fritschner, 2000). To combat these issues, some instructors require each student say something in class. But such requirements, often coupled with the blunt instrument of assigning points for speaking, does little to improve the quality of discussion (Hollander, 2002). There is a difference between having something to say and having to say something. Brookfield and Preskill (2005) provide quality suggestions and considerations to guide instructors towards "democratic classrooms," including building empathy for students who are reluctant to speak, but their focus on learning objectives (even the noble one of encouraging democratic ways of thinking and being) neglects the fundamental lived experience of the ways in which we as humans perceive the world. A framework for discussion focused on intentionality can redirect the instructor's focus from learning objectives to the intersubjective experiences that have the potential to turn discussion into dialogue (Bakewell, 2016; Merleau-Ponty, 1945/1962; Thomas, 2005; Thompson, Locander, & Pollio, 1989).

In this session, we aim to share driving forces that teachers can harness to facilitate good dialogue. Participants will be asked to describe and reflect on their own facilitation approaches in light of the five qualities of perception we highlight. Our goal for the session will be for participants to come away with an understanding of the often overlooked qualities of the primacy of perception in higher education pedagogy at the heart of teaching and learning.

Five qualities of perception can be used to facilitate more open and helpful dialogue related to course content. These qualities are not focused on specific techniques or activities. Rather, they focus on how teachers can position themselves so they can join students on the narrow ridge—to use Buber's (Smith, 2009) metaphor—that place where we truly encounter a student. These principles are derived from an understanding of human-beings-in-the world that includes the lived experience of teaching and learning—ideas derived from the field of existential phenomenology. It is our contention that when teachers' intentionality turns toward the lived experience, then students become open to exploring their own and others' assumptions that might otherwise stand in the way of their expanded understanding of abstract concepts that compose course content. To do this, instructors become aware of the need to facilitate learning by enacting these five principles in dialogue: 1. Sociocultural embeddedness is our lens on the world. As teachers, we need to acknowledge our personal worldviews and assumptions—including those we hold about our field of study, and create an open space for students to reflect on their worldviews and those of others to better consider their influence in understanding course content. 2. Embodiment is a basic quality of all experience; humans experience the world, including our experience of teaching and learning, in a holistic manner. As teachers, we need to make space for learning experiences that go beyond our transmission of information and students' acquisition of abstract concepts—to include emotions, imagination, and gut reactions. 3. Intersubjectivity has fundamental influence on our lived experience with others. As teachers, we need to be aware of the atmosphere we create with our students, of how we encourage respect and trust during classroom conversations, of opportunities we provide for shared experiences in the present moments of a class session. 4. Ambiguity is always a part of the human experience and needs to be welcomed and encouraged. As teachers, we need to create a safe and trusting atmosphere

in which we share and encourage students to share alternative views—to learn to ask the right questions rather than regurgitate the one-right-answers 5. Descriptions of experience are a powerful means of expanding understanding. As teachers, we need to utilize experiences to make sense of course concepts by modeling and facilitating students' reflection on what stands out within a given situation.

This existential phenomenological approach was derived in large part from a comprehensive case study of the lived experience of a gifted professor and his students in a graduate seminar. Participants over numerous years reported the case study course was life changing. The seminar focused on the psychology of existential phenomenology and our data supported the professor's contention that he prepared and taught classes based on enacting the philosophical ideas about the human condition of being-in-the world—most specifically the ideas of Merleau-Ponty (1945/1962). Our research team, however, collected numerous stories of how other teachers shared used phenomenological pedagogy in their courses, with their students reporting similar transformative experiences. In our data, the power of facilitation with a focus on the five qualities of perception reveals moments of beauty, insight, and epiphany. The professor's style, although unique, has been adapted by members of the research group to similarly powerful results—in undergraduate and online settings. With this practice session we hope to hear how other instructors have used this and similar pedagogies to enhance their classroom climate and student learning.

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## **Play With A Purpose: Designing and Implementing Game Based Learning in the Higher Education Classroom**

Jane Machin, Radford University

Play is often regarded as the antithesis of work and therefore not worthy of serious consideration in higher education. Research in children, however, demonstrates the value of play for communication, cognition and creativity. In this session participants will learn why and how to include play in their classroom. The development, implementation and effectiveness of different types of play are presented. Participants will have the opportunity to practice the activities and discuss how to adapt them to their own courses.

Play is often regarded as the antithesis of work and therefore not worthy of serious consideration in the higher education classroom (Berkoff, 2014; Yarnal et al, 2009; Tang & Baumeister, 1984). Play is for children, not adults. Mounting evidence from research on children, however, finds that play improves communication skills, cognitive abilities and creativity, all of which are critical competencies for today's university graduate (Yarnal et al, 2009; Tang & Baumeister, 1984). Children are more engaged and committed in game-based learning, and feel safe to experiment (Pettenger & Young, 2014). Play also improves participants' mental health and physical well-being, both of which contribute significantly to student success (Beiter et al., 2015; Wynaden et al, 2014). As innovative companies such as Lego and Google bring play into the workspace (Kristiansen and Rasmussen, 2014; Mainemelis & Ronson, (2006), I believe the time is ripe for academia to embrace play in the classroom.

The primary goal of this session is to bring together a like-minded group of playful people to exchange ideas on using play to facilitate learning and evaluate performance. Through hands-on activities, participants will comprehend the benefits play brings to pedagogy and learn novel ways to introduce play into their classroom. Three types of play (cooperative, competitive and dramatic) will be discussed. Best practices from the 2017 Serious Play Conference, where speakers from schools, corporations, the military and government shared their experiences creating and using games, will be presented. Finally, participants will identify strategies to secure departmental and college support for the value of play.

**Cooperative Play:** Escape rooms are physical adventure games in which players must work cooperatively to escape the locked room within a fixed time. A mobile escape room, featuring numerous puzzles that needed to be solved sequentially, helped students practice problem solving strategies, such as questioning assumption and looking (literally) at the problem from different angles. In another exercise, students collectively completed a 1000-piece jigsaw puzzle in one class session, effectively illustrating the value of observation, team work and goals versus tactics. **Dramatic Play:** Through interactive, immersive and purposeful fun, role-play fosters empathy, the first step in creative problem solving (Pettenger, West, & Young, 2014). Participation in an old age simulation and a dyslexia simulation encouraged meaningful discussion between students, faculty and community partners and helped students understand the experiences and emotions of different populations. On a scale of 5, pre-post empathy for these different populations increased from 3.80 (1.06) to 4.42 (0.90) (p

This session will be very playful! Participants will plan and participate in a variety of games to learn first-hand the value of play as a pedagogical tool. Participants will be encouraged to share their own experiences of game-based learning. The session will conclude with a discussion on how to ensure support for play in the classroom from departments and college leadership.

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## **Practicing What I Teach: Embedding Multiple Digital Learning Tools in a Class on Digital Learning**

Nancy Knapp, University of Georgia

Students need to become critical and fluent users of digital tools to achieve 21st Century learning goals and become full, participating citizens in today's increasingly digital society. Yet meaningful technology integration in education continues to be a challenge for many reasons, including lack of resources and support and counter-forces that emphasize a more traditional, transmission-based educational model. Yet we know that teachers tend to teach as they were taught, so one key reason teachers may struggle with technology integration is that few have had the opportunity to experience it as learners. So, as teacher educators, we need to model meaningful integration of digital technologies for learning in our own instruction. This session centers on an introductory course in digital learning that I taught this past summer using a semi-gamified structure and multiple digital technologies for learning such as Padlet, Pinterest, Google Docs and Forms, YouTube, Hangouts, Remind, and various LMS and videocasting programs. Students were also required to seek out and share Web 2.0, mobile and game-based technologies for learning, and finally, in small, self-chosen groups, to design and pilot a digital learning unit or module for a learning context of their choice. Participants will be given digital access to a bibliography of resources and the course syllabus and all assignments, to use or adapt in their own work as desired, and time will be set aside for us all to discuss share digital tools and strategies from our own practices. Our concluding discussion will focus on defining broader principles that may underlie effective use of technology for learning, not just in teacher education, but in multiple academic fields and contexts in higher education.

In order to become fully informed and participating citizens in the 21st century, students need to become critical and fluent users of digital tools for learning (NEA, 2013; Partnership for 21st Century Skills, 2006; Thomas, 2016). Yet on a 2015 survey summarized by EdTechReview, only 45% of K12 teachers reported using online tools in their instruction "daily" or "almost daily." More discouragingly, the two tech tools teachers reported using most commonly in the classroom were Microsoft Powerpoint (68%) and Word (67%)--essentially digital replacements for the blackboard and typewriter that have facilitated the traditional "banking" model of teaching and learning (Freire, 1970) for over a century. Meaningful technology integration in education has lagged in education for many reasons (Norris & Soloway, 2015), but the well-known effect of the apprenticeship of observation (Lortie, 1975) suggests that one important reason is that teachers have little experience in learning with technology themselves. Many teachers were students before the use of digital technologies for learning was widespread, or even possible; the average age of public school teachers in 2012 was 42.4 (NCES, n.d.), meaning they probably graduated from college around 1992, years before the World Wide Web as a public resource even existed. Yet even in teacher education today, we too often talk about the importance of technology integration for learning, but too rarely do it well in our own classes (Stokes-Beverly & Simoy, 2016). Clearly, in order to prepare teachers to use digital technologies frequently and creatively in their classrooms, we in teacher education must do the same, so that the current and future teachers who come to us can become comfortable with multiple types of technologies and experience their pros and cons for themselves.

The main goals of this session are: --To demonstrate how multiple forms of technologies (Web 2.0, Mobile, and Gaming for learning) were embedded and experienced by students as integral parts of a course on digital learning. -- To discuss, based on the research and our personal experiences, the benefits of such technology integration in teacher education, but also in many fields of higher education. --To share various apps, programs, websites, and strategies that instructors in many academic areas could use to embed such technology use into their own courses. -- To investigate together what principles of teaching and learning may underlie the effective integration of technology(ies) in higher education.

This summer I was asked for the first time to teach EDIT 6150E: Introduction to Digital Learning, a course offered during the first term of our online Masters program in Learning, Design, and Technology, and taken primarily by teachers and aspiring instructional designers. While some students come with significant technology-related skills and experience, many others enter the program less confident about using technology, often comparing themselves to more "tech-savvy" colleagues, actual or imagined. The stated course objectives are to have students investigate principles for integrating digital technologies into learning experiences and become more familiar with digital learning resources from three specific areas: Web 2.0, mobile learning, and games/gamification. I also had several unstated goals: that students become able to search out and evaluate digital resources for themselves, gain

confidence with exploring new technologies, and develop the willingness to share, try, fail, and adapt digital resources--dispositions essential to teaching with technology today. To facilitate these goals, the class was structured as a series of encounters with multiple digital tools, scaffolded to gradually require more active expertise, and offering students a chance to choose the tools and specialize in the area(s) of digital technology that most interested them. The entire class used a semi-gamified format (points, badges, levels, quests, etc.), while assignments were communicated and completed using common Web 2.0 (Google Forms & Docs, Pinterest, Padlet) and mobile (Hangouts, Remind, YouTube) digital tools. For the final project, self-chosen small groups developed and piloted a complete learning activity, significantly integrating one or more technologies/tools to facilitate 21st Century learning in a context of their choice.

An overview of the course structure and technologies used will be shared during the session, while a handout provided to all participants will give additional detail and provide digital access to a Google Drive folder containing the syllabus and all assignments from the course, which participants are free to use or adapt for their own instruction. This folder will also contain a bibliography of all research referred to and instructional resources used in the class. After each group of example technologies used (in Web 2.0, Mobile, and games/gamification) are discussed, a time will be set aside for discussion in pairs/small groups and then sharing with the larger group questions, experiences, and alternative technologies used by participants in their own instruction. The final 20 minutes of the session will devoted to an open-ended discussion of the learning principles that need to undergird technology use in higher education pedagogy. As noted above, technology will have little impact on learning if we simply replace old technologies with newer ones, but retain the same transmission-based models of education, in which learners are expected to passively receive and store knowledge, and then reproduce it on standardized assessments. Technology offers us unparalleled opportunities to encourage active, student-directed learning, but such changes run deep and require more careful thought and experimentation than even surface-level integration of technology.

## **Problem Based Learning Techniques: Using Video games and Simulations to Enhance Learning**

Jessica Barron, Pennsylvania Highlands Community College

As instruction and technology in the classroom shifts and evolves, the primary focus of learning should not be what students know, but how they can utilize and process their knowledge in real world situations. Instructional Video Games and Simulations can offer a much-needed solution to providing problem based instructional techniques within the STEM career. Video games have diverse environments, from science based open worlds to technical puzzles recreating complex formulas in physics. This practice presentation will explore the benefits of using video games and simulations in the classroom, while providing empirical evidence of its ability to motivate and instruct learners. Problem Based Learning (PBL) classrooms will be explored as well as different techniques to evaluate, implement and assess a video game within a variety of curriculum.

It is not a new concept to use role-playing and games in the classroom to teach. Most of the times, it is meant as an incentive to complete a task or as entertainment purposes. Other times, play is used in the actual learning process as a way to allow students to have an open mind about difficult or tedious information. Games and simulations can encourage and motivate the learner to discover topics they would have previously dismissed (Lester, & Russell, 2008). Intrinsic motivation is a powerful tool, especially in the STEM careers, to introduce complex and difficult topics. Gaming and simulations can provide safe and inexpensive experiences for the learner to play and experiment while using the knowledge they have retained (Barron, 2015). Simulations have been a part of the training process for the government and the military for decades. It is crucial that medics and soldiers receive hands-on training for the situations they may encounter in the field. Pilots can learn how to fly and navigate in dangerous conditions and learn from their mistakes without the cost of life or damaging the aircraft. A single decision can lead to a learning experience and not a disaster with simulations (Kennedy, 1999, November). This presentation uses a combination of traditional theory in order to create a solid basis of knowledge and the concept of inquiry based learning in order to allow students to apply their newly created theories. Learners will be encouraged to use play as a conduit for education in and out of the classroom. As they experiment with different scenarios in the video game or simulation, they will witness and learn from their successes and their failures alike. In fact, students can see the consequences of a bad decision in real time and learn how to troubleshoot a variety of situations with ease (Dickey, 2007). Content areas ranging from literature to the sciences can be integrated into a video game or simulation for an enhanced learning experience.

As a result of this practice session, participants will be able to:

- Use and create video games and simulations to further interest and promote critical and creative thinking
- Assess and evaluate a video game for classroom use
- Assign objectives and core concepts to the video games
- Implement the use of video games in a variety of curriculums
- Use Problem Based Learning techniques in the classroom for learning and assessments
- Use video games and simulations in a problem based learning classroom in order to create an optimal learning environment

This presentation will center on how to create a classroom that uses the combination of classical learning theories, PBL techniques and video games/simulations. In my career and in my studies, I have used a variety of learning methods depending upon the subject matter and learning objectives. I began to discover that there is a need for critical and creative learning environments, especially in the STEM careers. Students are not just required to know facts, but they need to know how to utilize their knowledge in simple and complex scenarios. Games like MineCraftEdu (an educational version of a popular mainstream game) enable instructors to create their own learning modules in different subject areas. Teaching Scientific Concepts Using a Virtual World – MineCraft is an article that demonstrates the instructional technique of modeling (Short, 2012). Other games, like SimCity, feature individual worlds that a learner can explore and manipulate with a variety of different endings and solutions (GlassLab, 2014). If an instructor would like to create their own unique video game or simulation, they have the option to create their own. Game creation software kits can cater to educators or even parents. RPG Maker, developed by Enterbrain, Inc. and Sploder, allows the user to create a Role Playing Game where the student will take on the role of a specific character and overcome obstacles to complete the game. I will facilitate discussion on the different perspectives and uses of Video Games and Simulations and PBL in the classroom. Then I will highlight examples of lesson plans I have used in the past implementing PBL and video games/simulations. I also want to talk about the importance to assess the learning process when using video games and PBL. In the article Classroom Management and Inquiry-Based Learning: Finding the Balance, Poon, Tan and Tan suggest that journals and reflections should be required throughout the learning process in order to create ownership for the decisions a student makes. As students analyze

their behaviors and interactions within the game and with their peers, they will learn how much of an impact they have on the world around them. This sense of empowerment is just as critical as the knowledge obtained (2009).

This presentation is meant to inspire instructors, professors and instructional technologists to use creative techniques in the classroom in order to motivate learners and help them synthesize their knowledge through using PBL, video games and simulations (Schunk, Pintrich, Meece, 2008). Problem based learning techniques will be showcased, paired with traditional learning theories. The positives and the negatives of video games will be discussed and presenter will demonstrate useful techniques on how to evaluate a game for effective use. Many instructors may be afraid to take on new technologies or have limited time in their curriculum. This presentation will also show how easy it is to create their own games and simulations for learning and experimentation in the classroom. Presenter will showcase MineCraftEdu and RPG Maker and allow participants to get into groups and experiment with the different video game creation interfaces.

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## **Project-Based Learning: Designing and Teaching to Promote Authentic and Meaningful Learning**

Hong Wang, Northern Virginia Community College; Dawn Hathaway, George Mason University

**Abstract:** Traditional teaching using lectures alone tend to produce rote learning instead of a thorough understanding of the course materials based on prior knowledge and experiences. The 21st century learning values skills in creativity and innovation, critical thinking and problem solving, communication and collaboration. Authentic learning connects student learning with a real-world problem or situation and encourages students to solve a problem or create a tangible product. Meaningful learning is generalizable, functional, and durable (Zitter, De Bruijn, Simons, & Cate, 2011). Authentic learning and meaningful learning foster 21st learning skills and are what educators desire to achieve in course designing and teaching. This practice session will introduce project-based learning as a practical approach to promote authentic and meaningful learning. It will start with engaging the audience with an interactive polling about project-based learning, followed by a brief overview of project-based learning, an interesting demonstration of project-based learning examples from the real world, and a free sharing of technology resources used to implement project-based learning. The session will end with a quick interactive group activity and a discussion about questions from the audience. Participants will take away with a better understanding of project-based learning, ideas for developing project-based learning activities, and free technology resources that can be used to implement project-based learning in course designing and teaching to promote authentic and meaningful learning.

Authentic learning is often referred to as real-life learning that is associated with a real-world problem or situation. It encourages learners to create a tangible and useful product, and provides students with opportunities to connect directly with the real world beyond the classroom. Meaningful learning is considered meaningful when it is generalizable, functional, and durable (Zitter, De Bruijn, Simons, & Cate, 2011). Generalizable means learning that is related to different tasks, contexts, and situations. Functional refers to learning that makes us act differently. Durable means learning that is kept in long-term memories and can be accessed at any time. As the ultimate goals of education include learning retention and learning transfer, authentic learning and meaningful learning are what educators desire to achieve in course designing and teaching. Project-based learning is defined as “an instructional approach that contextualizes learning by presenting learners with problems to solve or products to develop” (Moss & Van Duzer, 1998, p. 1). Project-based learning is different from traditional teaching as it emphasizes learning through student-centered, interdisciplinary, and integrated activities in real world situations (Blumenfeld et al., 1991; Solomon, 2003). The theoretical foundation for project-based learning lies in constructivism and situated cognition. Constructivism (Perkins, 1991; Piaget, 1969; Vygotsky, 1978) explains that individuals construct their knowledge through interactions with the world and others based on their prior knowledge. Brown, Collins, and Duguid (1989) think that learning is maximized if the context for learning resembles the real-life context. A brief literature review shows that project-based learning integrates real-world contexts and situations for meaningful learning.

This practice session will focus on providing participants, both instructors and educational developers, with a basic understanding of project-based learning, an opportunity to see real world examples from the presenters’ teaching, and a time to share free technology resources and project-based learning ideas that are practical for implementation. After this session, participants will be able to • demonstrate an understanding of project-based learning • explain theoretical foundations for project-based learning • share practical ideas for project-based learning • develop project-based learning activities • identify free technology resources for implementing project-based learning

**Description of Practice** Both presenters are experienced educators who have taught undergraduate and graduate courses in instructional technology, face-to face and online. We have also facilitated many professional development programs for faculty in higher education and teachers in K-12 setting. Our experiences span a wide range of approaches implementing project-based learning in course designing and teaching, including project exercise, project component, and project orientation (Morgan, 1983). We will share examples about different project-based learning models and artifacts created by our students, such as concept maps, podcasts, videos, and wiki. We’ll also discuss benefits and challenges related to project-based learning, and share some free technology resources we used for implementing project-based learning to promote authentic and meaningful learning.

**Presentation and Facilitation Techniques** The presenters will start the session with engaging the audience through an interactive polling about project-based learning, followed by a brief overview of project-based learning and an

interesting demonstration of real-world examples from our teaching. We will also discuss benefits and challenges of project-based learning, and share some free technology resources that we used to implement project-based learning in our practice. The audience will be grouped for a quick activity to develop project-based learning ideas based on scenarios. The session will end with a discussion with the audience about questions related to project-based learning.

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## **Promoting Better Reflection for Knowledge Retention in the Online Higher-Education Classroom**

Jeremy Elliott-Engel, Virginia Tech; Chelsea Corkins, Virginia Tech; Donna Westfall-Rudd, Virginia Tech

Conceptual reasoning and critical thinking, exam performance, and writing and speaking abilities across curriculum have all been shown through research to be improved by reflection activities (Hamann et al., 2012; Dallimore et al., 2008). However, integration of significant and continual reflection into a higher-education online classroom can be daunting, and often implemented with little success due to physical limitations. As a result, reflection activities are not commonly utilized in online higher-education classrooms, that provide accessible access to over 5.8 million students nationally (Smith, 2016) – ultimately jeopardizing the understanding and knowledge retention opportunities for many student. Compounding this issue is the reality that online classrooms are a result of the increased desire to make higher education accessible for more students, at least partially motivated by the underlying pressure for higher enrollment numbers, a need for education that will not soon decrease. With increased interest from international and national universities and faculty, new and innovative strategies previously undiscovered or underutilized can be integrated into the online classroom. In the workshop, strategies will be analyzed through interactive activities to model the online classroom and its challenges. Each participant will leave the workshop being able to implement and facilitate online classroom reflection throughout the virtual learning process.

Reflection is the process of a learner using their metacognition to expose what they know and what gaps they still have to fill. This process is beneficial for learners and should be embedded in the online classroom as often as it is for in-person educational spaces. As higher-education facilitators we cannot override inherent barriers of the current academic structure that is pressured to increase enrollments (Mulryan-Kyne, 2010) - which has led to an increase in online student enrollment of over 5.8 million per year, or one in every four student (Smith, 2016). Even with a push for greater engagement in the higher-education classroom to improve educational attainment (Boyle & Nicol, 2003), online courses create difficult interactions due to a lack of in-person communication for full processing of reflection ideas and topics. The professor in a virtual learning environment cannot rely on in-person discussion, a stalwart of classroom engagement where students process through explanation and analysis (Nicol & Boyle, 2003). Reflection occurs when students make-meaning and recognize limitations of their understanding. In order to mimic discussion, a reliance on blogs, reading responses, and discussion boards have been promoted for virtual classrooms. Reflection and assessment do not have to be facilitated as the final step of the designed educational process. Reflection can, and should be embedded throughout the learning process. Through many activities in the online classroom, the higher-education educator can implement a wide-range of strategies that promote reflection on the subject matter throughout the education process. Regardless of the limitations surrounding the virtual classroom, higher-education educators can implement reflection not only through the written word, but through assignments and assessment.

The virtual classroom is growing in popularity and effective use of engagement activities for reflection is limited. This workshop will focus on showcasing and highlighting some of these strategies for reflection and engagement in online-classrooms. The goal of the workshop is to help the online classroom educator recognize opportunities to incorporate and facilitate reflection with an emphasis on managing the many logistics. When the workshop is completed, the attendees will be able to: 1) identify the difference between engagement and reflection 2) select reflection strategies for their courses, no matter their domain. 3) and, prepare a plan for how they will incorporate new strategies for reflection in their classes.

Learning is the result of students reflecting on their experience and making meaning (Boud, Keogh, & Walker, 2013). The virtual classroom does not readily foster heavy use of facilitated reflection. A new emphasis on improved teaching strategies has lead educators in higher-education and in virtual classrooms to improve their pedagogical practice. Ensuring authentic reflection is a part of the improvement puzzle. In order for the educator to facilitate reflection, there are three locations for students to engage: outside of the classroom, within the classroom, and virtually. Direct interaction with classmates: Connecting students enrolled in online classes directly with their classmates for reflection requires carefully crafting assignments to have students to first form relationships and then engage with the topic. Many strategies for reflection focus on creating space and connectivity for discussion, such as study-pairs, study-groups; conversation pairs. These types of verbal processing structures can be formalized with guiding questions, and completed writing reflections as a documented result of the interaction. An outside of the classroom activity that Genereux and Thompson (2008) identified is digital story creation. In the Virtual Classroom: Activities for reflection include both silent written reflection but verbal reflection can also be utilized with the

advent of better video technology. Some virtual classroom reflection strategies include: end of module written response (Francis, 2012); video reflections and group discussion (Bower, Cavanagh, Moloney, & Dao, 2011); quizzes; forum posts (Higdon and Topaz, 2009); instructor mediated discussion boards (Durrington et al., 2006); and, learner moderated discussion boards (Durrington et al., 2006).

The facilitators will work participants through the strategies outlined in the description of practice by creating an online classroom environment within the workshop session. This will be done by using small group activities, and whole class activities for participants to think through the logistics and challenges of online classes. For example, we will ask all participants to write their class questions down on paper to mimic submitting an e-mail. Participants will be instructed to remit follow-up questions via “web video” which will in reality be a flip-chart on the wall. These activities will demonstrate some of the challenges of virtual reflection, and also the strengths of new formats: video conferencing, and synchronous meeting times, break-out rooms, etc. Participants will have an opportunity to experience the reflection strategies and then discuss their experience. They will be asked to reflect on: How did they experience the reflection activity? How would they adapt this activity for their personal use in their classroom? And, where in their curriculum can they see implementation?

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## **Put the ACT into Active Learning**

Theresa Thomas, Blue Ridge Community College

Why are students so disengaged during course lectures? With all of today's distractions, teach your students how to be a part of their own learning. During this session, attendees will be immersed in ACTive learning. They will learn how to make lectures more engaging and how to use activities in your classroom that will motivate and encourage students to get actively involved in their courses and have a deeper learning of the material. Learning techniques such as, "Coach & Player," Appointment clock and many more. The activities are appropriate for lecture or flipped classrooms in any discipline.

Advocates of the flipped classroom claim that this practice promotes better student–teacher interaction. For example, Bergmann and Sams (2012) point out that when teachers aren't standing in front of the classroom talking at students, they can circulate and talk with students. If teachers use inverted classrooms this way, they are likely to better understand and respond to students' emotional and learning needs. Research makes a strong case for the benefits of such interaction. Studies have shown that having teachers who recognize and respond to students' social and emotional needs is at least as important to academic development as specific instructional practices are, and this is especially true for at-risk students (Hamre & Pianta, 2005). Another purported benefit of flipped classrooms is that "they speak the language of today's students" (Bergmann & Sams, 2012, p. 20), who are accustomed to turning to the web and social media for information and interaction. There may also be another, deeper, reason students find video lectures more engaging: Brain research tells us that the novelty of any stimulus tends to wear off after about 10 minutes, and as a result, learners tend to check out after 10 minutes of exposure to new content.

Attendees will walk away with a greater understanding of Active learning and it's role in the flipped classroom. They will also leave with a good number of hands-on activities that they are able to start using in their classrooms immediately whether flipped or traditional.

As attendees enter the room, they will be asked to write their name on an index card. This will be used to call on individuals to solicit ideas of what they think active learning means specifically to them. I will then go over some everyday activities in our lives where we are or are not proficient and ask why they think that is the case. Simple tasks, such as reading, writing and even driving we take for granted but how did we actually learn how to do them? Not by observing but by actively sitting in the driver's seat and actually DOING them. We will briefly discuss Bloom's taxonomy and why it is essential we use that when planning out activities in the classroom. Then I will ask them to participate in a demonstration of a great partner activity called "Coach & Player" which demonstrates how active learning in the classroom can be used in all disciplines easily. Then we will do an icebreaker or two to show how this can build classroom community and accountability. We will then briefly talk about the "Flipped Classroom" and it's role in active learning.

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## **Recognizing and Responding to Instructional Change: Using a System Dynamics Modeling approach to bridging research to practice**

Juan Cruz, Virginia Tech; Cynthia Hampton, Virginia Tech; Niyousha Hosseinichime, Virginia Tech

Facilitating instructional change in engineering education requires a different approach, one that accounts for the complex nature of academia (Ghaffarzadegan, Larson, & Hawley, 2016) instead of the traditional approach that is based only on faculty reflection and intuition drawn from their teaching experiences (Jamieson & Lohmann, 2009). The purpose of this practice session is to discuss the interaction between different factors of the academic system that have the potential to promote or hinder the adoption of effective teaching practices in higher education. The ongoing research project that supports this talk aims to create a System Dynamics model to understand these interactions and its effects on faculty motivation to adopt Research-Based Instructional Practices (RBIS) in a particular case study. System Dynamics, as a branch in Systems Engineering, uses the particular causal relationships between the components of the system to understand their complexity in change efforts. At the end of the session, participants will learn some basic notions of System Dynamics and use them to increase their understanding of change in academia

Several reports on engineering education make the call to change pedagogical approaches in engineering to increasingly embed research on learning into teaching practices (Henderson & Dancy, 2008; Jamieson & Lohmann, 2009; National Academy of Engineering, 2005). Facilitating transformative change in instructional practices, referred to as instructional change (Lattuca, 2011), in higher education requires a different approach than the traditional, linear, reflection-based, and intuition-based approach. Instructional change must account for the complex nature of academia (Ghaffarzadegan et al., 2016), taking into consideration the dynamic interaction among academic agents over time (Sterman, 2000), its strong historical roots (Scott & Davis, 2015), hidden agendas (Carroll, 2006), power struggles (Riley, 2012) and unequal distribution between teaching, research and service expectations (Henderson, Beach, & Finkelstein, 2011). Academia is a complex system, and as such, it does not have isolated drivers or root causes that are individually capable for generating change (Sterman, 2000). Instead, multiple interactions and feedback loops exist that reinforce or balance decisions, motivators and actions of agents in the system (Senge, 1990). A review of the literature on instructional change in engineering education, and other related fields such as STEM and higher education, revealed that there are over 90 factors that can potentially impact the successful implementation of research-based instructional strategies (RBIS) in the classroom (Hampton & Cruz, 2017). Many of the resources found attempt to explain some of these factors, defining them as either drivers or barriers to change, and providing suggestions for generating the desired outcomes. However, the literature reviewed is narrow in its approach for promoting change, limiting the discussion to linear models focused on strategies to either reduce barriers or increase drivers, with expected change outcomes (Kezar, 2014). Although this model seems logical, its extent has been proved largely unsuccessful (Dearing, 2009; Henderson et al., 2011; Kezar, 2014; Kezar, Gehrke, & Elrod, 2015), since increasing certain drivers can lead to increasing barriers and, similarly, reducing certain barriers can lead to reducing other drivers (Senge, 1990; Sterman, 2000).

The purpose of this practice session is to engage participants in drafting a model of the interaction between different factors of the academic system that have the potential to promote or hinder the motivation to adopt RBIS in higher education. With this model, participants will have a better understanding of how to promote instructional change in their own institutions. To draft this model, there is a branch in systems engineering called system dynamics that uses the particular causal relationships between the components of the system to understand their dynamic complexity in change efforts (Sterman, 2000). Participants, in the practice session, will be able to use techniques of the system dynamics modeling process to gain insights of how the academic system impacts their motivation to adopt RBIS in the classroom. The technique emphasized during this session is the Group Model Building (GMB) (Andersen & Richardson, 1997; Hosseinichimena et al., 2017; Luna-Reyes et al., 2006; Vennix, Akkermans, & Rouwette, 1996) whose use is to eliciting the dynamics of a problem from the mental models of teams. At the end of the session, with this technique, participants will have a draft model shown in one or two diagrams (i.e, causal loop diagrams) that illustrates the causal relationships between different drivers and barriers of instructional change and explains a dynamic of its behavior. With this insight, participants will be able to identify and understand the virtuous or vicious circles (i.e, reinforcing or balancing loops) that drive or hinder the motivation to use RBIS in their classroom. In addition, participants will be able to understand how certain elements of the academic system are interconnected and how the participants' decisions and actions could impact other elements of the academy.

During this session, we will introduce the concept of causal loops, list the most prominent barriers and drivers to instructional change, and will invite the participants to assume the role of an instructor to think about how these barriers and drivers affect their motivation to adopt active learning practices (one of the RBIS) in their classrooms. To this end, we adapted the GMB protocol of Luna?Reyes et al. (2006) to a 50 minutes session for the purposes of this conference:

- The facilitators will give a brief introduction of the necessity, some difficulties and complexities of instructional change, its literature roots and its approaches in academic institutions. The objective is to highlight the necessity of using an approach designed to deal with the complexity of the systems.
- The facilitators will introduce one of the concepts of system dynamics: and causal loops with a simple and known example. Further, the facilitator will present the problem to model (i.e, how to increase the faculty's motivation to adopt effective teaching practices)
- Participants will identify as many problem-related variables as possible. First, individually and then collectively in groups of 5 people. The facilitator will show the subcategories of factors that affect change to help them generate ideas and to focus the conversation. The question to motivate the activity is: What are the key variables affecting their motivation to adopt RBIS)
- After prioritizing the variables according to group consensus, the facilitators will help to elicit from the group a causal structure that explains the system stories and behaviors of some of the selected variables. The facilitators will extract the common variables within the group and, collectively, will draw the relationships between the variables and will ask the groups to describe the story that each graph suggests.
- At the end, the facilitators will provide a summary and a reflection of the group thinking.

As described in the previous section, participants will be engaged in three activities: An individual task of reflecting on their own reasons that motivate the use of active learning, share these reflections in their small group and engage in a task of listing and relate these elements in a causal loop diagram. The facilitators will help with this task by providing other elements of the system that research suggest are drivers or barriers to adopting RBIS. With the help of the facilitators, the entire group will have the task of discussing and collectively create a diagram elicited from their experiences.

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## Recognizing Unconscious Biases as Educators

Jyotsana Sharma, Virginia Tech; Laura Farmer, Virginia Tech

What is unconscious bias and how does it affect our work as educators? When a student walks through the doors of our lecture halls, what we see initially is their appearance. Hair, skin color, height, clothing are some obvious details that we can readily perceive. Through these observations, do we really know who this student is? What is their daily life experience? What are their dreams and aspirations? What challenges do they face? Rather than asking students to tell us who they are, we tend to assume. As educators, we are often placed in a position of authority. We are perceived as experts in imparting information, knowledge, and assessing whether our students assimilated the knowledge bestowed upon them. In this process, we may assume that we know our students because we get presented with glimpses of their personalities as we interact with them in academic settings. Do we tend to consider ourselves experts on knowing them as individuals? Do we understand how our students may integrate knowledge through the lens of their life experiences? With awareness being raised across university campuses about inclusion and diversity issues, the session presenters aim to facilitate a metacognitive discussion concerning the nature and impact of unconscious biases in higher education. Participants are also invited to consider cultural humility as an important construct of cultural competence and inclusion on university campuses, providing a basis for appreciating diversity in higher education settings. The presenters will include experiential activities designed to examine our own cultural assumptions as educators.

The American Council on Education (2012) claims diversity and inclusion in higher education settings is imperative in order to: enrich of educational experiences, promote personal growth and a healthy society, strengthen communities, and enhance economic competitiveness. According to the U.S. Department of Education (2016), enrollment in undergraduate programs according to race/ethnicity displayed an increasing trend for White individuals enrolling in college and a decreasing trend for all other groups. In order to rectify this issue, various universities across the U.S. have engaged in diversity and inclusion initiatives because they value learning that takes place within the context of a diverse and inclusive educational setting. Most people assume that they are good and moral based on the fact that they are not bad people or do not behave in a manner that is considered bad. (Tappin & McKay, 2016; Sedikides & Gregg, 2008). This is known as the self-enhancement phenomena, which assumes a positive view of oneself. As educators, this assumption may be detrimental when working with diverse populations. It has the capacity to create a mental block or a blind spot for educators. Taking only our perspective into consideration, we often think and feel like good people but we do not consider how our students view and experience the world around them. Students' cultural differences vary across gender, age, race, ethnicity, sexual identity, ability, and spirituality. Considering the vast range of these individual differences, do our students feel like we truly "see" them? How do we understand them as who they really are? More importantly, how do we convey this understanding? This understanding would be facilitated by considering an individual as a "whole"; a fascinating, beautiful interaction of all of their intersecting identities. Understanding or empathizing with one or two does not make us culturally competent educators, it takes more than that – it takes humility. Thomas Merton said, "Pride makes us artificial; humility makes us real" (Merton, 1978). Our question is: How are educators seeking cultural awareness and understanding, and in what ways are they conveying humility? As a professional, it is important to know that we are the experts in the room. On the other hand, does being the expert make us susceptible to the common assumption of competence? These and other questions are identified, discussed, and evaluated in our presentation. We also assert the importance of seeking cultural humility and ways in which that can be done successfully.

1. Participants will have the opportunity to explore their own unconscious biases through interactive activities.
2. Participants will be able to analyze the implications of unconscious biases on student interactions, wellbeing, and performance in classes.
3. Participants will be able to co-create strategies that facilitate consistent growth in abilities related to cultural humility.

Both presenters are counselor educators. Through their roles in teaching counselors-in-training, the concept of cultural competence and humility are discussed in depth and given primary importance. Drawing from our experiences as educators, the presenters will talk about how unconscious biases influence our day-to-day interactions with students. Presenters will focus on the ways educators may increase awareness of unconscious

biases about our students in order to create a safer, learner-centered space. Intentional use of words and language while addressing students, asking questions, or making observations will also be discussed.

The presenters will facilitate experiential activities related to unconscious bias as a means for participants to become aware of their own mental blocks and blind spots. After each activity, we will facilitate a discussion regarding insights gained and engage participants in co-creating ideas, ground-rules, and practice applications for their own educational settings moving forward.

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## **Stop Working Harder than Your Students! Strategies to get Students to do the Work, take Responsibility, and Increase Learning**

Kevin Ayers, Radford University

This practice session will focus on strategies to engage students in the learning process, have them take greater responsibility in their own learning, and reduce teacher workload. Current literature on the learning process will be discussed and multiple examples of teaching strategies will be shared. Participation from audience members will be requested and open dialogue encouraged. Subjects covered will include: 1. How to utilize quizzes and tests in an online format to improve learning and flip the classroom so that students have engaged with materials prior to the class. 2. How to embed “snap shots” into lecture material so that students have a vested and active role in a lecture based lesson. 3. How to design and use rubrics to focus student effort on assignments as well as increase student responsibility for the evaluation of their own work. 4. How current research on learning should be driving pedagogy and the evaluation process.

According to Brown, Roediger & McDaniel (2014) whoever does the work learns the most. Their research indicates that learning is an acquired skill and many learning strategies are counterintuitive to the traditional instructor. Many of the common learning strategies utilized by students and promoted by teachers does not improve learning but instead focuses on short-term memorization designed to pass tests. The research on learning suggests successful strategies include an active process by the learner that includes, desirable difficulties, proper feedback, frequent low stakes testing, the interleaving of information, and elaboration and reflection (Brown et al, 2014). Robyn Jackson (2009) suggests that master teachers have a disposition towards teaching. She outlines mastery teaching principles some of which include: start where your students are; know where your students are going; support your student’s efforts; use feedback to help them improve; focus on quality instead of quantity; and never work harder than your students.

As a result of this session, participants will be able to: 1. Understand current thinking on the learning process and what constitutes effortful learning. 2. Explain and understand the concepts of the active learning process that includes, desirable difficulties, proper feedback, frequent low stakes testing, the interleaving of information, and elaboration and reflection. 3. Be able to use rubrics that students can use to self-evaluate. 4. Design online tests and quizzes that are low stake, frequent, interleave material, and deepen accumulated knowledge. 5. Develop lectures that engage students to become active members instead of passive listeners. 6. Develop strategies and teaching principles that allow teachers to never again work harder than their students.

Participants who attend this session will learn about principles of learning and how to facilitate deeper learning through specific teaching principles and strategies. This practice session is meant to empower the teacher to design assignments that create active learning opportunities for students, require greater responsibility, and requires students to participate actively in a self-evaluation and reflection process. Ultimately, the purpose of this session is to teach teachers to get more fro, their students by having them do most of the work. Whoever does the work learns the most.

Participants will actively engage in the presentation by taking an active role in the lecture portion by both prepared information and answering questions using the Socratic Method. Participants will be given handouts containing examples rubrics that are used by students and faculty to help students with a self-reflection and self-evaluation process. Participants will be encouraged to share any other teaching strategies or techniques they have had success with at improving students participation, learning, self-reflection, etc. Other examples from audience members of lessening teacher workload and improving students learning will be encouraged.

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## Teaching Techniques: Beyond Lectures

Chessica Cave, Lincoln Memorial University

As the dynamics of education change so does the way our students learn and respond to classroom strategies. The traditional way of teaching through lecture is no longer sufficient nor effective. Students today prefer learning through a combination of lecture and interactive teaching. However, when making instructional decisions within higher education, the question must be asked: “Are we modeling good instructional practices?” This presentation examines how to revitalize instruction through the integration of active learning strategies that facilitate interaction with students. A hands-on approach will demonstrate teaching techniques that have multiple benefits and are more efficient than a typical lecture for elevating student’s attention and engagement.

What we teach and how we teach plays a vital role in student’s academic success. Due to the large class sizes, professors often default to a daily lecturing procedure as the dominant teaching method (CTE, 2016). However, over the years, research has supported that students lose interest or focus after 10 to 20 minutes of continuous lecture (Drummond, 2008). So what is the best instructional modality for college professors? While instructional methodology is situational, strategy research supports interactive techniques are frequently more effective than lecturing (deVise, 2012). Experts suggest students learn more and better through a variety of teaching techniques than reliance upon a single lecture (Hanford, 2016). The availability of several different student-teacher interactive teaching techniques, such as role play, questioning, debate, and case studies, increase student engagement and attentiveness. In every classroom, the content may vary, but one thing to remember is that “Learning doesn’t happen in the physical space between the instructor and the student. Learning happens in the student’s mind” (deVise, 2012, p. 1). Through interactive learning, we can help students receive the new information and apply it, rather than merely taking notes (Lambert, 2012).

Upon completion of the session, participants will be able to: 1. Define and describe active learning 2. Reflect upon the learning process 3. Recognize the multiple benefits of active learning 4. Develop teaching techniques to keep their students attentive and engaged during class

This practice session will focus on several aspects of active learning: thinking critically, small group work, videos with guided questions, and promoting a positive, interacting classroom. I will model teaching strategies that demonstrate how to keep your students attentive and engaged through the integration of active learning strategies. Participants will be encouraged to participate in the different teaching strategies that focus on getting students to participate in class discussions and activities actively.

Moving to higher education after teaching 13 years in public education was a challenge. One of the hardest things was learning to lecture. After a couple of chapters, I realized that lecturing was not for me. I asked myself, “Is teaching college students foundationally different than teaching elementary students?” So I went back to the way I used to teach using groups, projects, games, making posters, creating skits and songs. It was not long after, I realized college students enjoy learning the same way my elementary students. These strategies may appear elementary, but when compared to lecturing, these achieve more effective active learning and student achievement of learning objectives.

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**The Art of Teaching: Using Acting Techniques in the Teaching/Learning Process**  
Greg Justice, Virginia Tech

Professional actors and teachers share two common objectives. Both desire to have their audience pay attention to them for as long as possible, and, for the audience to remember their words for as long as possible. Over the millennia, professional actors have developed hundreds of techniques to achieve these objectives. This workshop shares some of the techniques that actors use on stage in engaging their audiences and demonstrates how these techniques can be utilized for improved classroom instruction. Participants will learn how to avoid nerves both before and while teaching. They will learn how to warm up and prepare their presentation instruments. They will learn how to use more effective body language/non-verbal behaviors in the classroom to keep audience focus on the teacher for longer periods of time and to help students remember the words spoken to them for longer periods of time.

**LITERATURE REVIEW:** As this is a very unique, “hands-on,” participatory workshop, there is little literature review on the topic. A few practitioners are doing this kind of work around the country but there is very little publication and/or review. The focus of this workshop is on the practical of teaching and not the theoretical.

**GOALS:** Having completed this workshop, participants will be able to: • Identify the teacher’s three main instruments (body, voice, and brain/feelings) • Utilize techniques that warm up and prepare the physical instrument prior to teaching a class or giving a presentation • Demonstrate techniques to keep from getting nervous before and/or during class • Demonstrate effective non-verbal body language skills in classroom teaching Analyze the teaching physical environment in terms of using the space more effectively when teaching

**DESCRIPTION OF PRACTICE TO BE EXEMPLIFIED:** In terms of communication effectiveness, research estimates that 50% of effective communication comes from non-verbal behavior, 40% comes from use of the voice, and 10% come from the words used. The physical instrument is a human beings strongest and most effective communicator. This workshop will focus on the most powerful (and often over-looked) communicator – the physical. Emphasis will be on the following: 1) Using body language techniques while teaching. This includes: a. The teacher’s physical warm-up b. Entrances (grabbing the audience’s attention in the beginning of a class or presentation) c. Working in the Positive Energy Zone while teaching (taken from the movement theories of Francois Delsarte) 2) Using the physical geography of the teaching environment in more effective ways. a. Defining the strong and weak teaching spaces in a physical teaching environment b. Teaching in the places of power a room (i.e. center stage) c. Avoiding the places of weakness (the far-right side away from the audience view) in a room d. Finding ways to move during a lecture and defining strong and weak crosses when teaching

**PARTICIPANT ACTIVITY:** The workshop is highly interactive. Participants will be on their feet practicing and trying out the techniques demonstrated in the workshop. All activities are done as a group and never individually. This helps participants to not feel self-conscious or intimidated by the material

**The Changing Role of the Undergraduate Teaching Assistant: Undergraduates Who Teach**  
Eric Pappas, James Madison University; Brittany Frazer, James Madison University; Kiersten Sanok, James Madison University

The changing role of the undergraduate teaching assistant (TA) is being prompted largely by budget cuts and other “belt tightening” measures, as well as the growing number of young people attending college. In addition, experience is telling us that undergraduates may well be more capable of assisting in the classroom than we might have imagined. The principle author of this paper has been employing undergraduates to help teach small and large social psychology classes for over ten years. Over this period of time, as reflected in the author’s publications and presentations over this time, his undergraduate teaching assistants have taken greater instructional and mentoring responsibilities each year. The successes of this still ongoing process have been supported by increased TA training, a more stringent selection process, and prudent risk-taking in the classroom. Currently, TAs in the author’s classes lecture and present new material, facilitate large and small group instruction, help develop new instructional methodologies, write academic papers, and make conference presentations. In addition, the TAs mentor students and grade narrative student assignments. This high-paced Practice Session will be facilitated by the professor and two current undergraduate teaching assistants, and will include handouts for participants. The objectives of the session are to explain, illustrate, and demonstrate the teaching assistant practices (and TA selection processes) noted above and in this proposal, and to engage in an exchange with participants in such a manner as to help them determine which practices might be useful to them in their classes.

TEACHING ASSISTANTS / INSTRUCTIONAL ROLE: Dickson (2011) suggests that “having undergraduates as teaching assistants helps engage students with the material, creates a relaxed and effective classroom environment... and improves class quality” (p.75). According to Peter Doolittle, “Undergraduate TAs provide extra eyes and voices...they’re sources of energy, working with groups and helping keep discussions on track” (Mangan 2016). The undergraduate TA can “help to break down barriers between the professor and the undergraduates by helping to translate the professor’s ideas to the students and by helping the professor understand the students’ perspective” (Fingerson & Culley 2001, p.301). Having two authority figures in front of the class creates a more dynamic learning environment that helps with student engagement because the exchange between a professor and teaching assistant helps capture and maintain attention (Reges 2003). SELECTION PROCESS AND TRAINING: A candidate should be tested and trained over time by working in different roles with increasing pressure and responsibility: Working as an “apprentice” to a current teaching assistant for a semester, along with some formal instruction from the faculty member, will provide preparation (Lynch & Pappas 2017). While Sana, et al. (2011) suggest training in a formal class setting, choosing an individual with technical knowledge, confidence, and speaking ability is a good first step. MENTORING: A benefit offered by undergraduate TAs is “having a peer available in a class leadership position” (Stoecker 1993, p.307). Undergraduate TAs, according to Dickson (2011), are “extremely effective in circulating around a room helping students...and acting as mentors” (p.78). Dennen & Wang (2002) define a mentor as “one who mediates expert knowledge for novices” (p.817).

There are several objectives to our session. Session attendees will be able to do the following: • understand the expanded roles teaching assistants can productively play in the classroom, both in small and large classes (and how this might apply to the participants’ classes); • learn how to expand the role of their new or current teaching assistants, both in teaching and mentoring students; and • be able to start to train teaching assistants to assume an expanded teaching and mentoring role.

The practices to be described and demonstrated by the three presenters include the following procedures undertaken by undergraduate teaching assistants: • Employing new instructional methodologies for teaching disciplinary material in the classroom, • Facilitating large and small group discussion, • Grading narrative assignments, and • Mentoring methodologies.

We will ask participants to share their strategies and experiences using undergraduate teaching assistants in the classroom. In addition, we will ask for feedback on our practices of using TAs in a greatly expanded manner. Depending upon the number of individuals attending the session, we may meet and talk in smaller groups (with the TAs each facilitating a group).

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**The Dish on Dishonesty: How to Discourage Academic Dishonesty in a Copy and Paste World**  
Robert Turner, University of South Dakota; Matthew Turner, Radford University; Scott Turner, University of Wisconsin - Stout

Anyone who has taught for more than a brief time has encountered students cheating. Surveys tell us that somewhere between two-thirds and three-fourths of college students will admit to cheating on a major assignment (McCabe, Trevino, & Butterfield, 2001). Given the almost omnipresent nature of student cheating what can we as educators do to reduce the incentive to cheat? This practice session will discuss the current situation, address some potential methods for addressing the problem, including ways to create assignments that are less susceptible to cheating, and finally work with the participants to design content for their own courses.

Almost anyone who has worked in education has encountered some form of academic dishonesty, such as cheating on assignments and tests or plagiarism. It is so prevalent that it can become perceived as the norm in some cultures or institutions (Engler, Landau, & Epstein, 2008; McCabe, 1999). Some of reasons that students cheat include feeling time constraints, having the desire to help a friend (Yardley, Rodriguez, Bates, & Nelson, 2009), or thinking the work is too difficult (Brent & Atkisson, 2011). Often, the likelihood of being caught or punished is insufficient to change behavior (Megehee & Spake, 2008; Miller, Shoptaugh, & Wooldridge, 2011). Cheating may have negative impacts on the students. One study found that, while students who cheated on an assignment did better on that assignment, they did worse in the class overall (Pierce & Zilles, 2017). Moreover, they did worse in the follow up class as well. Students may not have a good understanding of how cheating affects them personally. A better option than catching students who are cheating or plagiarizing is to prevent the behavior in the first place. This can be accomplished in many ways. For instance, a culture of academic integrity fostered by honor codes and open discussions can let students know about the seriousness of academic dishonesty, although these are not a panacea (Brown & Howell, 2001; McCabe et al., 2001). Academic dishonesty undermines students' individual learning and growth and it adds burdens to the teacher in the forms of paperwork, confrontations with students and the need to prove the dishonesty. And this may occur without the support of the administration. However, by preventing academic dishonesty teachers can remove a significant burden while insuring that their students are really learning what they need to know to be successful.

Upon completing this session, participants will be able to:

- Understand why and under what circumstances students cheat
- Recognize and evaluate practices that allow for or encourage student cheating
- Plan strategies that will make cheating less desirable and less effective

During the session, participants will discuss situations in which students cheat or plagiarize. Various methods for recognizing, dealing with, and preventing cheating will be presented and analyzed for their various strengths and weaknesses. These will include both structural elements as well as technologies that can be used for these purposes. Participants will take part in group discussions on specific techniques and strategies and how they can and should be used. Topics for discussion on structural elements of a course may include:

- Fostering a culture of academic integrity through honor codes and classroom discussions
- Emphasizing the consequences of violating the honor code
- Establish a reputation as an enforcer of the honor code
- The use of performance based activities and assignments which are more difficult to cheat on
- Multiple deliverables for assignments
- Lowering the stakes of assignments
- Assessing learning in multiple ways can make cheating less rewarding (i.e. both for a project and exam)
- Employing individualized assignments
- Using open ended questions
- Allowing the use of open notes and open books for quizzes and exams

Discussions of technological solutions can include:

- The use of randomized online test questions from a test bank
- Beginning and end of class attendance checks with clickers
- Providing access to plagiarism prevention services such as turnitin.com, MOSS, or YAP

Participants will develop their own plan to prevent cheating and then model the process with other participants to refine and improve their plan. Participants will present their findings to the group.

Discussion among session participants will encourage them to think about how they can utilize best practices in cheating recognition and prevention in their courses. Participants will be encouraged to share their own ideas and implementation of these practices and how they can be used to address their specific teaching and evaluating situations. In order to evaluate how their implementation of cheating prevention can benefit their students, participants will be encouraged to share their own ideas, challenges, and experience with implementing and evaluating their practices.

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## **The Paradox of Play: How Encouraging Playfulness in Students Can Lower Barriers to Learning and Lead to Better Work**

Patrick Tomlin, Virginia Tech; Sara Sweeney, Virginia Tech

What is the value of play for college students? What does a pedagogy of play look like? How and in what ways do existing pedagogical practices shape the experience of play? Despite a vast and longstanding body of literature on the subject of play in early childhood, answers to questions about the role and practice of play in higher education are surprisingly difficult to come by. Indeed, there seems to be little place for play in lecture halls, capstone projects, or seminars. This practice session argues that student learning can both benefit from and reveal new aspects of the power of play. To do so, presenters will look toward perhaps an unexpected place: the library. Using a university library's recent project studios as case studies, presenters will examine prevalent assumptions about play--including its frequently negative juxtaposition with the seriousness of "work"--and resituate it within the context of emerging studies on creativity and innovative thinking within higher education. Ranging from the library's 3D printing labs and Virtual Reality sandboxes to its low-tech but high-impact collaboration and tinkering spaces, the session will highlight how libraries can offer an ideal partner for engaging students in playing to learn. Attendees will learn best practices for promoting play in and around the classroom to foster reflective thinking and ignite the creative potential of students. The session will also offer hands-on, interactive exercises that utilize different modes of learning facilitated by play. Finally, grounding play in specific contemporary pedagogies like participatory learning and critical response theory, the session will explore how crucial 21st century skills like prototyping and digital literacy can develop in systematic and deliberate ways through the "orchestrated chaos" of play.

Unstructured learning, particularly in the form of play, is a natural part of human development. Play is known to correspond to higher intelligence among a variety of species, and in human children, is considered a vital part of childhood development (Tanis, 2012, p. 3). Play in adulthood is generally considered a diversion rather than a source of learning (p. 6); however some researchers have begun to study connections among play, playfulness, and learning in adults (pp. 14-17). Tanis' 2012 study of play in adult classrooms found that "play/playfulness creates a unique classroom environment that is relaxed and feels safe; thus creating an ideal space for students to be challenged and take risks." While studies on play in adult learning are only beginning to emerge, there is a long history of research on unstructured learning and its effects on motivation and self regulation. In a research study called "Pink Time," an instructor told his students to "skip class, do anything you want, and give yourself a grade" (Baird, Kniola, Lewis, & Fowler, 2014, p.1). His goal in this assignment was to promote self-regulated learning and academic motivation among his students because according to the researchers, "Straight A students will not necessarily thrive in this new world, learners will" (p. 1). They found that when given trust and authority in their learning, students were at first skeptical (having not experienced unstructured learning frequently in their college courses), but ultimately found that the process made their learning feel more meaningful and helped them become more aware of their learning. Additionally, they were able to more easily integrate their learning across their lives (pp. 7-8). Studies such as these drive the development of innovative library spaces that allow students to play with their learning. By applying the findings of these classroom studies in the naturally unstructured environment of libraries, we have been able to supplement the development of 21st century skills that students and faculty pursue in the classroom.

Participants will... ..know basic background information on studies about trust and play in adult education. ...know the value of giving their students authority in the learning process. ...recognize the barriers that some students may face in unstructured learning. ...understand how play can lower those barriers. ...understand what skills are particularly compatible to play-based learning. ...know how play and trust can be incorporated into learning space design. ....be motivated to seek out or develop resources on their own campuses that can help their students engage in unstructured, play-based learning.

This session will demonstrate the practice of unstructured, play-based learning that gives learners authority and trust in the learning process. Educators can create environments and provide resources that allow learners to pursue new ideas, passion projects, or even hobbies while also developing new skills. This session will discuss what some elements of those environments could be, based on the model we use in the design of our own spaces. Examples will include both physical resources such as space and supplies and human resources such as advising.

We plan to bring in one of the tools that we use in our spaces (potentially VR goggles or 3D design software) to allow participants to engage in a “play-to-learn” activity. Participants will be given supplies and a few guidelines but will otherwise be given significant creative freedom in the ultimate implementation of the task. We will then reflect on a group about: 1. How participants felt going into the activity. 2. What obstacles they encountered. 3. What they ultimately learned. 4. What they could learn with more time.

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## **The Smithsonian Learning Lab: An Interdisciplinary, Digital Instructional Tool for Collegiate Classrooms**

Jamie Gillan, Montgomery College; Sara Bachman Ducey, Montgomery College; Sara Bachman Ducey, Montgomery College

This interdisciplinary session will introduce participants to the exciting new digital platform from the Smithsonian, the Learning Lab (LL). The session begins with a brief introduction to object and museum based learning, will then demonstrate use of the LL with assignments utilized in interdisciplinary classrooms, and finishes with a play session where participants build their own collections and consider how they may apply the LL to their curriculum. Once the Learning Lab has been shared, the session will begin to address how the tool can be used in the classroom. The team will share experiences, uniquely designed assignments, and other course materials. They will also share how the Learning Lab uniquely addresses a diverse learning audience in unexpected ways. In the final segment, we will encourage attendees to be hands on—we will invite them to create their own Learning Lab account, and start building their own collection to be used with their classes. Attendees will learn basic discover, create, and share functions of the site, and will be introduced to thinking routines from Harvard's Project Zero, that model how LL objects and collections can be used in the classroom. The team will provide contact information for future questions and learning opportunities in addition to further use resources. This session requires technology: please bring a charged laptop (preferred), tablet, or a smartphone. To learn more: visit [https:// learninglab.si.edu/](https://learninglab.si.edu/)

Our workshop relies on literature from various disciplines including object-based and museum-based learning and teaching pedagogy. Our introduction to object-based learning will integrate how to extend teaching with tangible (real) objects to teaching with digital objects and artifacts (Cain, 2010; Chatterjee (2010) and Duhs, 2009). The training on the LL itself is supported by research conducted by the Smithsonian's own work (Milligan, 2015 and SCLDA, 2017) as well as the experience of the presenters, Ducey and Gillan, who educate higher education faculty on the use of objects and museums. The teaching strategies we discuss are primarily "thinking routines" developed and promoted by Harvard School of Education's Project Zero" (Harvard, 2016).

Participants will leave the session with a comprehension of what the Learning Lab is and has to offer. Participants will analyze potential thinking routines and teaching strategies for classroom application. Finally, participants will have developed at least one way to integrate the Learning Lab into their own curriculum with ideas for additional uses.

The session begins with a brief discussion of object- and museum-based learning followed by a demonstration of the LL with assignments utilized in multiple disciplines, and finishes with a play session where participants start to build their own collections and apply the LL to their own curriculum. The workshop leaders work at Montgomery College, in suburban Maryland (near DC), and began working with the LL in 2015 during beta testing, and have continued bringing it to our classrooms and faculties ever since. Since then, we have hosted 5 Learning Lab workshops, training over 100 faculty from a variety of disciplines. MC has a 20-year relationship with the Smithsonian Center for Digital Learning and Access, the entity responsible for the development of this new tool.

During the second half of the session, or "play time", participants will learn to discover, create, and share using the LL. They will also learn to integrate their own materials onto the platform. Participants will have an opportunity to directly apply what learn in the session to their own curriculum. They will leave with resources for further use. Participants should bring their own charged laptop (preferred), tablet, or a smartphone. This session is suitable for all disciplines.

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## **The VT-Shaped Student in practice: Learning by creating, coaching and assessing within a peer-to-peer framework**

Lori Blanc, Virginia Tech; S. Nikki Lewis, Virginia Tech

To address an emerging skills gap for university graduates in the 21st century workplace, we apply a model of learning that aligns with the “T-shaped professional” and the “VT-Shaped Student”. Virginia Tech’s Curie and Da Vinci (“CurVinci”) Science Living Learning Community forms a multi-year experiential learning program that is designed to complement students’ content-based courses during their formative years. Using six High Impact Practices (HIPs), we focus on the development of the top arm of the VT-shaped student (problem-solving, adaptability, initiative, professionalism, communication, and interpersonal skills) through purpose-driven, hands-on work in our residential Maker Space. This experiential learning program gives science students increasing levels of opportunity to develop transferable professional skills and personal qualities that will complement their disciplinary knowledge, and position them to become good practitioners of science. In this practice session, faculty and students present this multi-generational, student-centered approach to teaching and learning. We focus particularly on how students can develop collaborative problem-solving skills by creating, coaching, reflecting on the process of problem-solving, and assessing learning outcomes within a peer-to-peer framework. We present program design, learning outcomes and trade-offs, as well as student perspectives on resulting educational experiences. Following a formal presentation, we offer an interactive break-out session in which the audience can participate in focused informal discussions with faculty and students on scalability, transferability, the assessment process, and student learning outcomes.

There is growing need for pedagogy that prepares college graduates with the knowledge, attitudes and abilities necessary to quickly adapt to rapid change in the 21st century workplace. This need is confirmed by recent surveys, which found that college graduates are falling short of employer expectations for collaborative teamwork, communication, interpersonal and problem-solving skills (AAC&U, 2007; Hart Research Associates, 2015). In particular, employers need “T-shaped professionals” with both deep disciplinary and systems knowledge (the vertical arm of the T) and breadth of skills that cut across majors and experiences (i.e., “boundary-spanning competencies”; the horizontal arm of the T) (Donofrio et al., 2009; Gardner & Estry, 2017). Virginia Tech recently developed the “VT-Shaped Student initiative” in which the addition of the “V” in the VT-shaped student supports the development of the “T” through purpose-driven experiential learning in the spirit of VT’s motto *Ut Prosim*, “That I may serve” (Beyond Boundaries, 2016). Experiential learning includes hands-on, high impact pedagogical techniques that promote holistic, life-long learning, and long-term retention and transfer of knowledge to different contexts (Halpern & Hakel, 2003; Kolb, 2015; Kuh, 2008). Experiential learning can be promoted in both curricular and co-curricular contexts. Indeed, Baxter Magolda (1999) argues that involving all types of educators, regardless of their campus roles, is needed to integrate the various domains of learning - cognitive competence, intrapersonal competence, interpersonal competence, and practical competence – and prepare college graduates for complex challenges of the 21st century. Living learning communities, which integrate curricular and co-curricular learning through academic and student affairs collaborations, provide an excellent example of how universities can create a seamless learning environment conducive to meeting the learning needs of undergraduate students (Bourassa & Kruger, 2001; Kezar et al., 2002; Sandeen, 2004).

As a result of this session, participants will be able to: 1) Understand how to articulate and promote T-shaped and VT-shaped learning outcomes within an experiential learning context. 2) Understand how to incorporate multiple high-impact practices into an academic/student affairs STEM collaboration. 3) Understand how to frame assessment and evaluation work as undergraduate research. 4) Understand ways in which this learning model can scale up and transfer across learning contexts.

In this practice session, faculty and students present pedagogical design and learning outcomes of Virginia Tech’s Curie and Da Vinci Science Living Learning Communities in relation to the VT-Shaped Student initiative. Combined, “CurVinci” supports ~200 first- to fifth-year students from over 30 majors in three colleges, annually. As part of the inVenTs STEM community in Lee Hall, CurVinci students access a residential Maker Space with prototyping technology (e.g., 3D scanner and printer, laser cutter, microscopes, design software). In the spirit of developing VT-Shaped Students, the CurVinci experiential learning program integrates six high impact practices: First Year Experience (FYE), Common Intellectual Experience, Collaborative Projects, Learning Community,

Community-based Service Learning and Undergraduate Research opportunities. CurVinci programming centers on the FYE, with second through fifth-year students serving in community-based leadership roles. First-year (FY) students and leaders are supported through a formal curriculum, which requires applied project work within a co-curricular environment. Our primary mechanism for integrating HIPs and developing VT-Shaped Students is a peer mentoring program, which focuses on FY engagement in co-curricular programming and reflection on problem-solving. CurVinci promotes collaborative teamwork, interpersonal and problem-solving skills through participation in a “peer-to-peer” project tradition. Projects are envisioned, managed, and implemented by students. The project structure complements academic courses in which students enroll; courses provide academic content and CurVinci students develop skills associated with the application of that content within Lee Hall’s Maker Space. FY students create projects, second-year student leaders provide coaching and reflection on the problem-solving process, third-year students oversee and coordinate project requirements and deliverables, and fourth-year students assess the project’s problem-solving outcomes using AAC&U VALUE rubrics (Rhodes, 2009; AAC&U, 2009). This project structure reflects the problem-oriented, peer-run, participatory practices of scientists. Students communicate their work on these projects through formal presentations to faculty, staff and administration, and at conferences.

This joint faculty-student presentation aims to raise awareness of innovative academic endeavors happening within Virginia Tech’s Living Learning Communities to promote VT-Shaped Students through purpose-driven experiential learning. Following faculty and student presentations, we will hold an interactive break-out session in which the presenters will offer focused informal discussions with the audience. Blanc will meet with interested participants to discuss how the CurVinci Living Learning Community peer-to-peer learning model can be scalable to larger groups both within the context of a residential community or academic department, or as a mechanism to connect curricular and co-curricular learning environments. Lewis will discuss how the innovative pedagogy of this model can transfer to a wide range of learning themes and objectives. Student leaders will discuss how, through a well-structured, guided model, peers can learn from each other in ways that provide efficiency, adaptability, and the capacity for students to take ownership of their undergraduate learning experience. Presenters will also discuss the problem-solving assessment process and other learning outcomes from the perspective of their roles in the community.

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### **University & District Partnerships: Collaboration to Enhance the Intern/Extern Experience**

Michelle Beavers, Chesterfield County Public Schools; Dr. Tracy Walker, Virginia State University

Developing the professional knowledge, skills, and dispositions of students in a university program is critical in the preparation for success in an ever-changing global society. Internships created in partnership with collaborating institutions extends the theoretical context of learning to the practical application. In developing a more cohesive partnership, it became critical that universities and school districts worked collaboratively to align their goals, objectives and anticipated outcomes of the intern experience. This practical session walks participants through the journey of an evolving university-district partnership. Opportunities to explore the tools and resources developed to enhance the student experience will be shared. Because there is no one size fits all model, ample time is given to engaging with other participants to brainstorm ideas and outcomes to enhance your own university internship experiences.

Developing a greater connection between coursework and clinical experiences in education has been noted as imperative for building more effective internship experience for future leaders (Zeichner & Bier, 2015; Deschaine & Jankins, 2017). Benefits of such a collaborative partnership not only include more engaging embedded and culminating experiences, but also expanded resources for all, and mutually beneficial improvements in university programs that will produce stronger principals (Wallace Fou

Introduce the University & District partnership as a collaborative approach to ensure learning application of key standards and expectations of accredited university programs. Demonstration of the steps in meeting the goal is outlined sequentially in the objectives Identify planning stages in developing university & district partnerships Review planning templates and stakeholder involvement Complete a SWOT analysis of own practices with internship experiences Develop a shared vision for implementation Create intern job descriptions outlining expectations Prepare students for the dissemination of letters of interest and resume Share alignment practices and district expectations Review program standards as the initial tool for bridging districts and universities Collaborate to link practical application to the internship experience Evaluate program to the transferability of district application across other divisions Build the internship experience with the individual student and the partner Establish clearly defined objectives for the internship experience Identify a product of completion for the internship experience Meet collaboratively with student to review expectations Collaborate to evaluate student performance Provide continual critical feedback during the experience Introduces evaluation tool for the position to provide feedback to the student Partner with district supervisors to identify gaps in practical application Identify gaps in student learning with university partners Develop a method to showcase internship learning experience with district and university partners Product introduction to District Leadership Team Demonstration of Learning to University Partners Provide examples of university/district support from beginning the internship to interviewing for a position. Share future considerations and planning efforts

The university district partnership has evolved over a 5 year period. Initially, students identified areas of interest and sought placement in partnering school divisions for the practical application of learning throughout an academic program. Traditionally these partnerships were limited to contact at point of placement, site visits, and then evolved into a more structured partnership. In developing a more cohesive partnership, it became critical that universities and school districts worked collaboratively to align their goals, objectives and anticipated outcomes of the intern experience. This critical step resulted in a crosswalk document identifying the standard expectation and the types of practices implemented. Although the site specific internship is a focused effort at practices in a given school division, attention was also created to consider the application across neighboring divisions. It isn't uncommon for an intern to arrive at their identified site with a list of expectations to be checked and practiced. Although a component of this model is still relevant, our partnership dug deeper into the consideration of what knowledge, skills, and dispositions students have to offer and equally important, what the school division could do to enhance these skills for further development. Unique is that this model truly becomes collaborative in the sense that it is not only what the district can provide for the student, but how the student can enhance the district. Armed with this information, we were able to create internship experiences that met the expectations of the university accrediting bodies, but also immersed the intern into real-world problems of practices. Having ownership in the experience afforded students the opportunity to stretch their abilities and develop innovative solutions to every day problems of practice in the school system. Ultimately, the university seeks to graduate competent, caring, effective and reflective practitioners; the school district seeks to recruit and retain the right people for the right positions at the right time.

By constantly evaluating the gaps in the learning, making practical application difficult or gaps in the application, where learning is not transferred, exposed both institutions into opportunities for self-growth. Finally, we find our interns say thank you on the final day of the experience, receive their evaluation and look towards graduation. Added to the experience became an opportunity for the student to showcase their efforts in the internship experience. Showcasing their research-based recommendations, practice, and application provided districts with a resource to springboard into their next improvement efforts. The teams who view these presentations are in turn afforded the opportunity to interact with our intern, listen to their critical thinking, and evaluate the application of the approach being considered. Including this step serves as an outlet of sharing of practice and an opportunity for the intern to gain further recognition in the school division.

At each step of the process, presenters will share the practices they used, examples, and then encourage participants to consider the application in their own setting. Identify planning stages in developing university & district partnerships Think-Pair-Share: Brainstorm compressed SWOT analysis. Pair to share SWOT, Share to brainstorm ideas for removing barriers in the threats. Share alignment practices and district expectations & Build the internship experience with the individual student and the partner Gallery Walk: Groups will each be given a potential internship focus (counselor, principal, technology specialist, financial officer) and asked to brainstorm practical application of the learning outcomes and what a potential problem of practice an organization might face that an intern could address Collaborate to evaluate student performance I Notice, I Wonder protocol-conduct a comparison protocol of two evaluations about what we notice about the evaluation and feedback loop Develop a method to showcase internship learning experience with district and university partners Feed Forward Protocol: Participants will partner with several different individuals or small group to share a feed forward idea of how an intern might show case their experience

## Using PowerPoint AND Focusing on Learning

Janet Hilder, Virginia Tech

PowerPoint presentations are a mainstay in college classrooms, and they have helped instructors and students alike organize course content for learning and studying. Created with software that offers ready-made templates into which bulleted lists and other information may simply be dropped, their focus is generally on the course content and fitting it into slides to accompany an instructor's spoken message. What is often missing is a focus on how students learn and how the presentation may best be designed to support meaningful student learning. In this practice session, some presentation design strategies will be shared that take into consideration what we know about human learning such that time invested in creating PowerPoint presentations is time well spent tailoring its design to specific student needs.

More than 20 years ago, Clark (1983) declared that “the best current evidence is that media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in our nutrition . . . only the content of the vehicle can influence achievement” (p. 445). PowerPoint emerged seven years subsequently, and since then, numerous researchers have conducted media comparison studies relative to the impact of PowerPoint on student learning. Many of these studies have shown no significant difference in the performance of treatment and control groups (e.g. Nouri & Shahid, 2005; Savoy, Proctor, & Salvendy, 2009). A preponderance of published studies does suggest, however, that how PowerPoint is used in the classroom does impact student performance; indeed, “poorly designed instruction is poorly designed instruction, regardless of delivery mode” (Bishop, 2014, p. 337). The literature includes numerous sources of advice in the form of best practices to observe when creating a PowerPoint presentation to be instructionally effective (e.g. Priya, 2012; Berk, 2012), many of which may be directly tied to psychological principles underlying human learning such as memory, cognitive load, and attention.

This session will present strategies for the design of instructionally impactful PowerPoint classroom presentations aligned with research-based principles of human learning, graphic design, instructional design, and message design and that can thus foster meaningful learning. This session will be guided by the following learning outcomes: 1. Participants will be able to explain how psychological principles of human learning apply to the design of instruction delivered via PowerPoint. 2. Participants will be able to apply principles of graphic design, message design, and instructional design in the construction of learner-centered PowerPoint presentations. 3. Participants will be able to critique PowerPoint presentations designed for classroom learning.

PowerPoint presentations are ubiquitous in college classrooms. Such presentations offer the opportunity to entertain students with animated text, video clips, sounds, and images not possible with a chalkboard. When their design does not take into account how people learn, however, they are not as effective as they could be in fostering meaningful learning. Focusing on that outcome of meaningful learning, specific considerations in this session will be the use of text, images, animation, and sound within PowerPoint presentations; differentiating between education and entertainment; and issues relative to attention and memory. This session will present examples of presentations adhering to best practices, as well as well-received counterexamples (i.e. lousy examples).

Participants will engage in an activity designed to foster an understanding of the essential principles of learning. These learning principles will be discussed in relationship to the construction of instructionally meaningful PowerPoint slides. Finally, participants will critique examples of PowerPoint slides that demonstrate the proper and improper use of the strategies that are presented in this session.

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## **Using primary sources in the digital landscape: empowering and engaging students across disciplines**

Leah Wolfson, United States Holocaust Memorial Museum; Emil Kerenji, United States Holocaust Memorial Museum

Primary source study has long been recognized as a critical skill set for college-level humanities courses. Indeed, since the 1990s, educational psychologists Samuel Wineburg and Lev Vygotsky implored historians to move from the passive mastery of a body of information to teaching a mode of critical thinking that actively interrogates the subject at hand through multiple vantage points, multiple perspectives, and multiple primary sources (Malkmus, 2010). In today's digital landscape, accessibility to a variety of source bases appears to provide unprecedented opportunities to engage in this type of learning. However, truly rigorous primary source study--no matter the discipline in which it originates--is far more than simply providing digitized access. Rather, this model of inquiry requires a depth of understanding and context often missing from currently available digital repositories. This practice session will examine this dual challenge through one institution's attempt to provide digital, curated, contextualized, primary sources for the college classroom: the US Holocaust Memorial Museum's new digital teaching tool, *Experiencing History: Holocaust Sources in Context* ([www.experiencinghistory.com](http://www.experiencinghistory.com)). The tool capitalizes on the potential of the physical primary source and the digital medium by selecting and grouping primary sources from the Holocaust period in an attempt to encourage complex thinking and conclusions around the most prominent and well-documented genocide of the 20th century. The practice session will explore how early evaluation data of this tool speak to the enormous potential of primary source study to change how students learn and how professors teach about an incredibly complex period. Ultimately, primary sources remind us of the diverse and individual ways in which people responded to a host of situations and historical moments. This practice session will interrogate how students can begin to comprehend this multifaceted, complicated, contradictory, and in the end, very human record of history.

As previously indicated, a robust literature on teaching with primary sources has existed since the late 1980s and 1990s. This includes works like Wineburg, S. S. (1991). Historical problem solving: A study of the cognitive processes used in the evaluation of documentary and pictorial evidence. *Journal of Educational Psychology*, 83(1), 73; Wilson, S. M., & Wineburg, S. S. (1988). Peering at History through Different Lenses: The Role of Disciplinary Perspectives in Teaching History. *Teachers College Record*, 89(4), 525-39; and Wineburg, S. S. (1991). On the reading of historical texts: Notes on the breach between school and academy. *American Educational Research Journal*, 28(3), 495-519. In addition to this work on primary sources, many recent articles focus on the use of educational technology in the classroom, and how this is impacting student access and learning outcomes. These works include Lindquist, T., & Long, H. (2011). How can educational technology facilitate student engagement with online primary sources? A user needs assessment. *Library Hi Tech*, 29(2), 224-241; Waring, S., & Torrez, C. F. (2010). Using digital primary sources to teach historical perspective to preservice teachers. *Contemporary Issues in Technology and Teacher Education*, 10(3), 294-308. Digital humanities teaching and learning is also a part of this larger conversation. One of the leading texts on this topic remains Gold, M. K. (2012). *Debates in the Digital Humanities*. University of Minnesota Press. Together, this literature speaks to how primary sources can invigorate student learning and the impact of the digital on that learning process. This session draws upon these findings while also expanding them to think about their impact on student learning as they are combined within today's college classroom.

To both practice and interrogate how primary sources encourage student agency and ownership over a given topic; To explore and examine how the digital medium--when strategically deployed--can enhance primary source study, and offer new avenues of inquiry not previously available; To specifically examine how the case study, *Experiencing History: Holocaust Sources in Context*, endeavors to provide primary sources that encourage this type of critical and complex thinking on a difficult history; To interrogate the potential pitfalls of digital primary sources, including the limitations, and simplified conclusions that students might draw;

This session is part of the "learning strategies and design" category because of its focus on digital primary source study as a learning method to apply to a given course. Primary source study encourages student-centered and student-directed learning by forcing them to consider the multiplicity of vantage points, positions, and perspectives of historical actors in a variety of situations. The digital space opens up further avenues for deeper exploration, and,

when designed to do so, can become a landscape of “planned serendipity” that create allow for fruitful connections between materials and broader topics that serve the pedagogical goals of a particular classroom. Finally, digital primary source study can become a portal to a greater world of inquiry, research, or interest for a student who may not have entered the classroom with that level of engagement.

This session will use, as its case study, the interactive, fully accessible, public site, Experiencing History: Holocaust Sources in Context. To that end, participants are encouraged to interrogate the goals and objectives of the session using this site in real-time with the presenters. This investigation will make up approximately 25 minutes of the fifty-minute session, and will consist of a series of simulated classroom scenarios meant to illuminate the challenges and opportunities of this type of teaching for student agency, active learning, and discovery. Activities might include: 1) interdisciplinary methods for teaching a single source or multiple sources; 2) thinking about the materiality of the primary source as part of its content; 3) dissecting and examining tags as a method of inquiry; 4) examining a source-base (such as diaries or letters) as its own “narrative” and discussing the implications of its curation, to name only a few.

## **Using Video to Inspire an Ethical Discussion: A digital Approach to the Readers' Theater Instructional Strategy**

Michael Forder, Virginia Commonwealth University; Brenda Wands, Virginia Commonwealth University

The Medical Readers' Theater is an instructional strategy historically utilized by medical schools to present relevant social and ethical issues to students in a manner that sparks discussion and analysis (Savitt, 2002; Case & Micco 2006.) Students are treated to a live reading of a script by actors assuming each role. At the conclusion of the performance the instructor facilitates a discussion on the issues presented. Students then have the opportunity to question the actors to learn more about their roles and viewpoints. The strategy was utilized in the Virginia Commonwealth University Department of Nurse Anesthesia Ethics and Health Care course. The unique challenge being that it is a hybrid course with only the first and last sessions being held on campus. In addition, students attended the live on campus sessions from four distant sites concurrently via video conferencing technology. To accommodate the structure of the course, the readers' theater performance was pre-recorded and delivered as a streaming video during class. The instructor then continued with the discussion facilitation in a live manner. Developing a digital version of the readers' theater performance not only maintained the integrity of the experience, but also opened up new avenues for delivery and learning. These included the opportunity to present to students at distance sites as well as those who were unable to attend the live session, the option to post the video for review after the in-class session, and the ability to rewatch a portion of the video to cover items that may have not been clear during the initial presentation.

Medical Readers' Theater is an instructional strategy that may be used to expand a curriculum to explore some of the issues currently faced in a clinical practice or society. Since 1988, East Carolina University (ECU) has developed their Medical Readers' Theater program using selected short stories that were converted into scripts (Savitt, 2002). The program was initiated through North Carolina Humanities Council grant funding received in 1988. Since that time, Dr. Todd Savitt has directed the readers' theater program at ECU's Brody School of Medicine. Dr. Savitt's *Medical Readers' Theater: A Guide and Scripts* contains fourteen scripts on issues categorized as physician and patients, being a physician, ethical and social issues, and aging and chronic illness (2002). The book also contains a detailed description of the use and methods to create a theater workshop. These short stories are medical stories with a message that ECU believes may help educate medical students and professionals about social and ethical issues. The intent is to use the stories to set the stage for discussion about the issues within the story. This technique has been used by ECU in both the educational forum and with the community to stimulate a discussion and provide an opportunity for shared thoughts about medicine and other issues presented in the story. Unlike a reading of an ethical scenario, in this practice the audience experiences a live theater performance. The readers sit on stools at the front of the room. No memorization or acting is required. The cast members, wearing similar clothes, read the stories while maintain an offstage focus, not making eye contact with the audience or other cast members. A moderator begins the program with an introduction and brief explanation of the process. The script reading takes roughly thirty minutes

Participants will be able to apply the readers' theater instructional strategy to an ethical course topic in their field of instruction. Participants will consider the instructional opportunities created through the use of video content in an ethical scenario classroom experience.

The readers' theater technique enhances the delivery of ethical scenarios by creating a personal and emotional connection to the characters portrayed in the performance. Instead of reading the script from a strictly analytical standpoint, participants view a performance of the scenario. In doing so their own personal biases, beliefs, and morals come into play, which leads to a more authentic discussion and analysis of the ethical implications at play. This session focuses on the development and deployment of a high-quality recorded version of a readers' theater performance as a substitute for the live event. The digital version of the performance presents instructional opportunities not easily replicable with a live performance such as transmission to distance and online students, pause and reflection practice, and post discussion review and analysis.

In this practice session participants will be both introduced to a novel instructional strategy and provided a look at how digital media can reshape the capacity of a strategy. As such, there will be two distinct participatory opportunities in the session that touch on both topics. First, participants will have the opportunity to take part in a

live readers' theater demonstration. The facilitators will walk them through the roles of the students, actors, and performance facilitator in order to understand how the strategy is employed in a traditional setting. After introducing the video application, a roundtable discussion will be held to generate ideas on how a recorded version of the readers' theater performance can be used instructionally. This will allow participants the time to apply the strategy to their own courses and instructional needs while sharing their ideas with others.

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## **Walking a mile in another's shoes: Applying strategies from secondary education to address the needs of struggling students in higher education**

Chloe Ruff, Gettysburg College; Megan Pilarcik, South Western High School

How long has it been since you were new to your field? How long has it been since you learned a new skill or struggled to keep up with others in your class? Faculty and instructors in higher education institutions spend decades developing knowledge and practicing the skills and strategies necessary to be successful in their disciplines. We no longer think or act like novices though we often teach undergraduates who are novices in our disciplines. Additionally, few graduate programs include pedagogical training and often that training does not focus on teaching students who are struggling academically in our courses. In contrast, primary and secondary teachers spend years learning and honing pedagogical strategies designed to engage diverse sets of learners: supporting and challenging students with a range of academic abilities and interests. In this practice session, we will use simulations to encourage participants to empathize with the challenges of struggling learners and model strategies for developing classroom environments and routines that support and challenge students with a range of abilities and interests.

Through the United States the undergraduate population is becoming more diverse – students enter colleges and universities from a wide range of cultural, social, and economic background. In addition, the number of students with disabilities and mental health needs has increased over the past decades. The changing demographics within higher education should encourage faculty and instructors to look beyond traditional methods of instruction to better engage students who enter the classroom with diverse backgrounds, learning needs, and expectations. This practice session has developed from the presenters' participation as part of a group of faculty and K-12 teachers from Central Pennsylvania spent a month in Beijing during the summer of 2017. Ostensibly we were studying the Chinese and American education systems, however throughout the program the faculty and teachers spent hours discussing instructional strategies used to support the needs struggling learners. The group spent two hours each morning engaged in an intensive introduction to Chinese language. Over lunch we discussed the discomfort we felt as novices and the challenges we faced struggling to memorize, reproduce, and apply the language we were learning. From these conversations we began to reflect on our own teaching and compare strategies we used to support our struggling and novice students. The practices identified in this session draw from research on the differences between novice and expert learners (Alexander et al., 1994; National Research Council, 2000). These strategies are designed to provide novice learners with opportunities to engage in academically challenging material and reduce the feelings of anxiety and frustration in these learners. The practice session will also draw on motivation research showing that providing students with the opportunities for success and relevance to student interest increases engagement with academic content (Jones, 2009; Osborne and Jones, 2011).

Upon completion of this session, participants will be able to:

- Identify course activities and routines that create roadblocks for struggling learners.
- Identify differences between novice and expert approaches to learning and problem solving.
- Identify and apply strategies to support struggling learners within their own courses.

This session will incorporate a series of pedagogical practices and strategies which are used prevalently in secondary education but less often in higher education settings. The pedagogical practices will include using diagnostic and formative assessments to identify the range of student's abilities, developing routines in the classroom, providing frequent opportunities for low-risk assessment and feedback, and creating a classroom environment in which students feel safe making mistakes.

During this session, participants will be immersed in a simulation to make salient feelings of frustration and anxiety that may influence the behaviors and motivation of novice learners struggling to engage with new content. Participants will discuss aspects of the simulated learning experience which created roadblocks for their learning and will be asked to identify courses or content they teach which create roadblocks for student learning or motivation. The presenters will share and model a series of pedagogical strategies frequently used in secondary settings (described above). Individually or in small groups, participants will brainstorm applications for these strategies within their own courses.

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# RESEARCH SESSIONS

## **A Multidisciplinary Assessment of Stakeholder Outcomes from Service Learning: Key Considerations for Course Design**

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Competency-based education has received significant political attention—from courses to degree programs centered on this concept. The discourse is fueled by renewed discussion on students' ability to “master skills” in college. As strategies in teaching, learning, and higher education continue to evolve, we argue that Service Learning (SL) plays a critical role in this shift to competency-based education framework, but that other important methods of teaching competencies are equally important. SL literature, has received careful scholarly attention, but with a focus mainly on the student end users of SL courses. Little systemic review has been given to the experiences of stakeholders within key components of the SL model. To address this gap, our research focuses on students, teachers and nonprofit leaders. We examine the application of SL as a competency based education (CBE) approach and its perceived outcomes by stakeholders in the higher education system- students, teachers and leaders in community organizations engaged in the competency-based learning activities. To do so, we conducted interviews with instructors and students in a wide array of academic disciplines, as well as organizational leaders in various nonprofit sectors. We address: 1) What are stakeholder group (instructors, students, and nonprofit leaders) perceptions of SL? 2) Outside of SL, how is competency training embedded into curricula? 3) What are some key considerations for instructors of SL courses? Analysis shows student increases in applied skills as the most prevalent benefit reported across stakeholders, and that enhanced learning outcomes are counted as an important benefit by most students and instructors. Findings highlight considerations for instructors including clarifying expectations ahead of time and considering context.

CBE is championed as one approach to achieving the Obama Administration's goal to provide excellent and affordable college experiences (Johnstone & Soares, 2014). Scholars have examined competence as a series of “integrated capabilities consisting of clusters of knowledge, skills and attitudes” needed “for task performance and problem solving” and to “function effectively in a certain profession, organization, job, role and situation” (Mulder et al., 2008, p. 757). CBE instructors identify specific skills that students need to learn do to earn a degree or pass a course (Neem, 2013). SL is an instructional technique that combines competency-based academic learning with community-centered work. It has been described as “education in action” where students apply classroom learning to “respond to a community's articulated need(s)” (Glenn, n.d. in Burton & Reynolds 2009, p.18) while developing commitment to civic engagement in part through critical reflection and following a particular task promotes learning (Kirtman, 2010; Molee et al., 2010; Hilosky et al., 1999). Here, we define SL as instructors facilitating collaboration between community organizations and students, enabling students to complete a project of relevance to the class and the organization. All stakeholders matter. Clayton (2000) stresses importance of reciprocal partnerships between educational institutions, citizens and community organizations. A number of case studies showcase students' SL benefits, and other studies advocate for strong partnerships between faculty/instructors and community partners within SL courses (Chuang & Chen, 2013; Basinger & Bartholomew, 2006). But, it is unclear how stakeholder perceptions of SL differ. Given this gap, we seek to address student competency development through SL, and best practices for approaching SL.

This study combines a review of SL literature with analysis of interview data on student, instructor, and nonprofit stakeholder perspectives on service learning courses. We interviewed a purposive sample of 27 stakeholders in the central region of NC from October 2013 to October 2015. We included instructors, students who have taken SL courses, and Executive Directors (or equivalent) at nonprofit organizations that participated in SL. Instructor and student respondents were chosen from humanities and social science and from non-humanities fields, and nonprofits with humanities and science focuses were included to understand the broad picture. In all, we interviewed 17 respondents social science (7 instructors, 7 students, 3 nonprofit representatives) and 10 from STEM disciplines (4 instructors, 3 students, 3 nonprofit representatives). 13 of 27 respondents were male. Four instructors had Master's degrees; 7 had PhDs. Several instructors had taken courses that they considered service-learning like, but most were not explicitly labeled as such. Nor were classes taken by nonprofit leaders. All but two instructors reported teaching SL, either labeled as SL or including competencies and community work in course requirements in a way that met our SL definition. Most students reported having one SL experience, and a few had two. We conducted interviews either in person or by telephone. Verbal consent was obtained before interviews, and respondents were provided

with an information sheet on study goals and IRB contact information. Interviews were tracked using respondent ID numbers for confidentiality. All interview transcripts were coded by both researchers (to control for interrater reliability), and conceptual groupings (themes) emerged. Of themes that emerged from interviews, several are present in the literature.

Fourteen themes emerged through analysis. All data aligned under a theme(s). Seven themes found in literature and in interviews include: 1) stakeholders & partnerships; 2) clarifying expectations; 3) enhanced learning outcomes; 4) importance of reflection opportunities; 5) student increase in applied skills; 6) importance of presentation/information sharing as part of SL, and 7) resource commitment involved in SL. Seven additional themes that emerged from interviews are: 1) importance of understanding context; 2) potential for subsequent employment; 3) importance of student selection; 4) potential positive benefits for the academic department; 5) need for flexibility; 6) importance of matching skill to task, and 7) need to increase student time with SL partner organizations. The instructors who did not teach SL classes incorporated CBE techniques into their courses in other ways, reported below. The most prevalent theme in interviews present in literature was the benefit of student increase in applied skills. The next most common interview theme echoing literature was enhanced student learning outcomes. Apart from major themes, stakeholders reported different perceptions of SL. For instance, importance of understanding context was mentioned by over a third of respondents, but only one instructor. Importance of student selection came up almost half of instructor interviews, but was less common in other groups. Potential for subsequent employment, need for flexibility, and importance of matching skill to talk were mentioned by equal numbers of interviewees. But, no students discussed matching skill to task. Instructors that use non-SL approaches to teach workplace competencies encourage volunteerism, assign real-world problems but produce theoretical solutions, and practice vocational skills within the institution.

Scholars have challenged higher education to train students for life as responsible citizens, rather than career training (Bringle, 1996). SL courses and CBE are important components of this, as they foster student engagement and participation outside the classroom. This study supports other research regarding benefits of and important considerations for SL courses, but also highlights some important areas for consideration in designing SL that emerged from interviews. Among common perceptions about student benefits from SL courses included enhanced learning outcomes and an increase in applied skills, echoing extant literature. But many discussed necessary conditions for SL success. Over half of respondents discussed the need to clarify expectations up front, and 40% the importance of clarifying context, including understanding nonprofit working environments and community setting. Instructors should clarify with nonprofit leaders what and how students will learn about organizational context, and ask them to share information they feel students will need. Need for students to spend more time with nonprofits as part of the SL experience is also an important consideration in SL course design. Instructors and nonprofit leaders should carefully consider the time anticipated for students to complete a task, and anticipate time it takes to understand context prior to production. Relatedly, instructor clarification of the importance of sharing information and products or results from SL courses matters. These tie in with considerations of student selection, as clear expectations can weed out free-riders. Lastly, it is important to remember that other CBE approaches complement SL, and can help effectively develop student skills and accrue benefit to communities.

### **Analysis of an Online Program of Study**

Anuradha Sen, Virginia Tech; Matt Spindler, Virginia Tech; James Anderson; Thomas Archibald

Online degree programs are gaining quick popularity by making education accessible to working professionals. So maintaining a high standard of education and improving its quality over the years is an absolute necessity. Although research studies have explored methods of evaluating online degree programs, there is still a dearth of quality and exhaustive studies. In this context, the current study provides a rigorous methodology of evaluating an industry focused online Master's degree program housed within the college of agriculture at a land grant university. A data collection process was adopted by interviewing faculties and professionals. The information obtained was studied and analyzed and lastly a number of recommendations have been made, to not only maintain high standards, but also improve the quality of the program.

In the 21st century with the advancement of technology and growing demand for educated professionals in every field, online education has gained significant importance among teachers, students, and professionals. This is mainly because of its accessibility and flexibility with time. But, in order to improve the standard and quality of online education and make it equal to or better than its on-campus counter part, it needs regular, systematic and thorough evaluation. A study on different web-based course models conducted by Motiwalla and Tello (2000) concluded that the students had a positive experience and appreciated the flexibility of the online learning environment. Some areas of evaluation of online courses that need special attention are enrollment, cost, proper use of innovative technologies, and regular review of learning outcomes (Phipps & Merisotis, 2000). But, a number of researchers, after conducting thorough investigations, found that the current literature is dominated by informal and narrowly focused evaluations of online degree programs (Downs, 2014; Roberts et. al., 2004; Horne & Sandmann, 2012). In this study we evaluated an industry focused online masters degree program housed in the college of agriculture at a land grant university. The program mainly caters to the students who are interested in developing specialized skills in their professional careers. Thus, the main objective of the program is to satisfy the evolving learning needs of travel-constrained professionals in agricultural, life science, and natural resources professional fields. Apart from that, it seeks to assist the professionals in building discipline specific expertise by providing a supportive environment, which is conducive to online learning. So, it is evident that the above mentioned program should be equal to or better than its on-campus counter part to meet the needs of the students and professionals (Roberts et. al., 2004). Feedback received from students in Fall 2012 and Spring 2013, showed that they coveted a better connection to the peers, specialized instructions and relevant and updated curriculum (Burbaugh, Drape & Westfall-Rudd, 2014). But, a systematic and holistic formative evaluation of the program in the current situation is an absolute necessary to monitor and subsequently improve different aspects of the program.

The goals and objectives of the current study can be summarized as: 1. Collect information about the merit and worth of the program 2. Analyze the collected data 3. Make recommendations for the improvement of the structure and operating procedure of the program The online Master's degree program is composed of six concentration pathways, each with their own faculty coordinator. The researchers scheduled face-to-face interviews with each of the coordinators in order to create information about the merit and worth of the program. The researchers were able to carry-out interviews with five of the concentration pathway coordinators. The interviews were transcribed and were analyzed for meaningful themes using the constant comparative method.

The findings reveal that the concentration pathway coordinators were supportive of the online program, however, they were not completely invested in the program and the students that it serves. The coordinators provided two reasons for this lack of a complete investment: 1) a lack of a sustained investment in resources by the college in the form of non-supported faculty time to work on developing needed courses; and 2) extended psychosocial distance between advisors and advisees. The findings also illustrate that a major need for the program lies in the creation of updated and new course offerings for students. Currently, a lack of course options is perceived to be a significant limitation for the program and without investment from the college level, the program is unlikely to move forward as an expanding program.

Online programming offers students a flexible platform through which they can add to their professional knowledge and skills. Online programming offers institutions access to a population of students they would otherwise be unlikely to work with and offers them spaces to extend their wider impacts on the world. However, if online programs are actuated as second class programs of study they are likely to stagnate and not fulfill the role they could

for both students and faculty. Efforts should be made to establish practices to place online programs in similar value frames as on campus programs of study.

## **Challenges faced by Non-Native Speaker Graduate Students in Student-to-Student Dialogue**

Jennifer Matic, Rochester Institute of Technology

Student-to-student dialogue has the potential to significantly enhance student learning as compared to lecture-based teaching formats. One benefit of student-to-student dialogue is that students actively engage with the knowledge and perspectives of their classmates, while also reflecting upon and potentially refining and expanding their own knowledge. When the class composition is diverse, the diversity of the knowledge and perspectives to which students are exposed is generally greater, potentially increasing the benefit to learning. Given the internationalization of higher education, increasingly diverse classrooms provide an opportunity to leverage this diversity for student learning. This study explored the experiences of students enrolled in a student-to-student dialogue based graduate course, focusing on the influence of the diversity of the class on the dialogue. The study's results indicate that the student-to-student dialogue was significantly impacted by language-based challenges encountered by most of the non-native speaker students. This session presents these results and discusses them in light of key literature in this area.

Student-to-student dialogue falls underneath the umbrella of active learning, which holds that students learn best when they actively rather than passively engage with knowledge (Barnes, 2008; Hardman, 2008). It is a specific type of classroom talk during which participants "think together", building a shared common knowledge. During student-to-student dialogue students share their knowledge and perspectives with each other; consequently, students encounter and engage with new information (McNamee and Shotter, 2004), reflecting upon, revising, expanding, and refining their existing knowledge (Chi, 2008; Skidmore, 2006). As knowledge is culturally influenced (Boden, 2001), the benefit of student-to-student dialogue to learning is compounded when the class is culturally diverse. During multicultural student-to-student dialogue students are exposed to more diverse information (Boden, 2001) than they would be during homogenous student-to-student dialogue. The increasingly international character of graduate education in the United States and much of the world thus presents an opportunity for educators; faced with increasingly multicultural classrooms, the diversity of the class presents an opportunity to enhance student learning. Despite the potential benefits of multicultural student-to-student dialogue, the effective use of it in the real world is not without challenges and obstacles (Wells, 1999). Because during student-to-student dialogue the educational experience is collectively formed by the students, they wield considerable power to positively or negatively impact that educational experience. One area which has the potential to limit student participation in student-to-student dialogue is the student's facility with the language being used. A review of the literature reveals numerous challenges which a non-nativ

This qualitative study consisted of in-depth interviews conducted with 10 of the 13 students enrolled in a graduate level course at Rochester Institute of Technology. Of the students who made up the sample, 3 were native speakers and 7 were non-native speakers of English. Students enrolled in this course were considered to be an appropriate sample as the course was heavily dialogue-based, with approximately 75% of total class time consisting of student-to-student dialogue. Moreover, the class composition was diverse, consisting of students from Saudi Arabia, the United States, China, and the Dominican Republic. 9 of the 13 students in the class were non-native speakers of English. The interviews, conducted with native speakers as well as non-native speakers, asked general questions designed to explore students' perspective on the overall strengths and weaknesses of student-to-student dialogue as a method of classroom learning. However, specific questions were asked regarding the impact of the class' diversity on the quality of the dialogue (keeping in mind that this impact could be both positive and negative). Although the students were not asked directly about the effect of language fluency on the student-to-student dialogue, challenges caused by a lack of fluency soon emerged from the information gathered from the participants.

The data analysis indicated that, while nearly all students in the class enjoyed the student-to-student dialogue and felt that it was beneficial for their learning, the main challenge to the student-to-student dialogue was the lack of participation by some students, caused primarily by their lack of English language fluency. Additionally, 6 of the 7 non-native speaker students interviewed described challenges he or she had experienced as non-native speakers.

Although multicultural student-to-student dialogue provides an opportunity to enhance student learning, obstacles and challenges may occur. This study identified significant challenges faced by non-native speaker graduate students when attempting to follow and participate in student-to-student dialogue. These findings will be presented, and then discussed in light of the literature, most significantly Meyer (2000)'s framework for barriers faced by non-native

speakers in the English language classroom. The significance of this study's results for the practice of student-to-student dialogue will be discussed, and as will potential next steps.

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## **Community-Engaged Pedagogy in Senegal: Initial Results from a National Study**

Thomas Archibald, Virginia Tech; Amadou Ndiaye; Ryan Amaral; Maty Bocoum Sarr; Oladayo Omosa; Ozzie Abaye

Recent years have witnessed an increased interest in community-engaged pedagogy, both in the US and around the globe. The benefits of pedagogy that is engaged with the community are multiple: Students gain more real-life, hands-on, and experiential learning opportunities; academic programs are better linked to constantly evolving labor markets and innovation systems; community member knowledge and experience is valued and leveraged; and universities more directly fulfill their public service mission by contributing to the common good. Yet community-engaged pedagogy is not without its challenges. Limited funds, time, and other resources; rigid academic and administrative calendars and other constraints; difficulties in operationalizing fair and just relationships with communities; and numerous other barriers limit the potential of community-engaged pedagogy. In this presentation, we share some initial results of a study of the emerging trends, successes, and challenges of community-engaged pedagogy in Senegal. The lessons learned through this study have implications for higher education educators and administrators interested in fostering more community-engaged pedagogy, whether in West African contexts or elsewhere.

To a certain extent, higher education pedagogy has had community-engaged elements embedded within it throughout history. With the publication of Boyer's (1990) *Scholarship Reconsidered*, more educators and administrators began to focus more explicitly on better connecting university pedagogy with communities. In more recent years, scholars of community-engaged pedagogy have examined this approach in contexts ranging from translational community health (Rubin et al., 2012), pre-service teacher education (Boland & Keane, 2014), architectural education (Canizaro, 2012), critical food literacy (Winslow, 2012), and more. Appe and collages (2017) have studied community-engaged pedagogy in Latin America, but to date, it has been insufficiently examined in Africa. This presentation begins to address that gap.

To enhance the field's understating of community-engaged pedagogy in Africa, and to respond to an explicit need expressed by the Ministry of Higher Education and Research of Senegal, Virginia Tech's Education and Research in Agriculture (ERA) project, funded by the United States Agency for International Development (USAID), led a multi-stakeholder diagnostic study of community-engaged pedagogy in Senegalese higher education. The study was an outgrowth of an initial national symposium held by ERA in 2016. The symposium was predicated on a new law, passed in late 2014 that added community-engagement and outreach as a new mission for all Senegalese universities. At that meeting, university leaders presented an ad hoc overview of what their universities were currently doing to support and engage in community-engaged pedagogy. The symposium participants identified the need for a more systematic study of the current status of community-engaged pedagogy in Senegal. ERA, working with a small committee of faculty from Senegal universities, then embarked on a diagnostic case study of public and private universities in Senegal, using surveys, focus groups, and interviews to learn about the systems, structures, policies, procedures, activities, results, and challenges associated with community-engaged pedagogy across Senegal.

The analysis of data gathered through surveys, focus groups, and interviews is guided by an a priori framework designed to provide evidence about the systems, structures, policies, procedures, activities, results, and challenges associated with community-engaged pedagogy across Senegal. Additionally, administrative data on each university is also gathered and analyzed to contextualize the analysis of each individual university's case, since there is a great diversity across many variables in the Senegalese higher education sector (e.g., size, history, areas of focus, public/private, etc.). Finally, the study also involved a desk review of community-engaged higher education in the U.S. to serve as a benchmark and as a resource for charting a path forward, without having to reinvent the wheel. Though the study is still ongoing, initial results reveal that there is a fair amount of discrepancy in how different Senegalese universities understand and operationalize their community-engaged pedagogy mission. Yet despite that variation, there is also much common ground across types of activities, successes, and challenges encountered.

The results of this diagnostic study can enrich the global higher education field's understanding of issues associated with community-engaged higher education pedagogy. In addition, the results are already being used by the Government of Senegal and by USAID/Senegal as they each plot their course towards better connecting universities and training centers to the nation's community development needs.

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## **Educating the Whole Human: Deconstructing Authority and Empowering Students**

Thao Phi, Dharma Realm Buddhist University

The goal of this study is to examine a unique pedagogical model and effectiveness perceived by students, alumni, and employees of Dharma Realm Buddhist University. As higher education undergoes criticism and the need for an alternative model, Dharma Realm Buddhist University will serve as a single institutional case study. The case study explored a non-traditional approach to higher education, examined elements inside and beyond the classroom, and provided insight in how to positively impact student development. Primary research data was collected from narratives of students, alumni, and employees with secondary data from university-related documentation. Qualitative data was analyzed and organized into emerging themes. This study addresses the how shared inquiry and the constructive triangle of tension resound throughout the classroom and student life.

While the prospect of higher education becomes more questionable, it is critical to examine educational institutions and the effectiveness of how they teach. Liberal arts colleges undergo criticism that is twofold. Higher remains under criticism as less than 50% of American college graduates are satisfied with their education (Storch, 2013). Simultaneously, liberal arts education is critiqued for not being relevant for the contemporary professional world (Baker & Baldwin, 2014), with a shift toward vocational education. Traditional higher education primarily focuses on academic fields. With the growing dissatisfaction with only learning information and skills, students yearn for education that is reflective of their own strengths and abilities that are applicable to the world they live in (Schwehn & Lagerquist, 2014). Students seek to transform what they learn into meaningful knowledge. Palmer, Zajonc, and Scribner (2010) assert that educations have forgotten their purpose for students to learn about who they are and a larger purpose in life. This disconnect between what current educational trends and what students aspire for a different approach to education. In accord with the aims for liberal education to both intellectual inform and personally develop students, pedagogical practice is a key element of the educational experience. The interlinking pedagogies of contemplative and transformative pedagogy emerge as models that address holistic student development. Contemplative pedagogy has only recently become more visible in higher education as institutions and programs show more interest in contemplative inquiry (Grace, 2011). Critical contemplative pedagogy (Kaufman, 2017) interweaves critical and contemplative pedagogy as practices that foster deep personal awareness and social transformation.

The purpose of this study is to gain a greater understanding for engaging with an alternative model of education and pedagogical practice. The research design of this study is a single institution case study on Dharma Realm Buddhist University (DRBU), a private non-profit liberal arts college located in Ukiah, California. Primary data was collected from semi-structured qualitative interviews with current students, alumni, and employees of the university. Secondary data used came from public university-related documentation, including university materials and accreditation reports from WASC Senior College and University Commission (WSCUC). The interview questions were developed out of three research questions: 1) What is the mission of the university and the vision to implement it?; 2) How effective is the program designed inside and outside the classroom; and 3) What is the impact of DRBU education on student lives? This study was open to all current members of the university for participation. One-on-one interviews were conducted with 48 individuals. After analyzing the demographic information of the university body according to gender, race, and clergy/lay-status, a stratified sample of 14 participants was selected. After data collation, narrative analysis was used since “the study of experience is through stories. Emphasis is on the stories people tell and on how these stories as communicated. [...] First-person accounts of experience form the narrative ‘text’ of this approach” (Merriam, 1998, p.157). This study was conducted with Mezirow's (1991) transformative learning theory and Buddhist tenants of the four unlimited minds - compassion, kindness, altruism, and equanimity (Bodhi, 2005; Thera, 1993) - as the theoretical framework.

With DRBU's mission to educate the whole human being to reach their highest potential, several key areas surfaced. The research data yielded emphasized the unique nature of DRBU's pedagogy and its rippling effects. The findings of DRBU's pedagogy affected the process of learning inside the classroom, the implications for practice beyond the classroom, and application of lessons learned to self and others. DRBU's utilizes the method of shared inquiry and the constructive triangle of tension. The constructive triangle of tension a delicate balance between the different authorities in the classroom: teacher, text, and student. Students shared their part of the reason for attending DRBU was the seminar-style method of the program, and they wanted to learn that way rather than just being lectured at.

Alumni echoed the same sentiments as feeling like the classroom as a space of inquiry rather than a lecture, and students have the opportunity to talk while professors listen. Students and alumni described the ability to derive meaning from the material read: "I don't think I ever thought before I could actually understand something without having a whole bunch of other contexts and lectures and other materials. So that's something the program really did – it showed me I do have the capacity to read and understand and come up with interpretations of difficult material on my own." The impact of the way students learn at DRBU elicited a deeply self-reflective process, as a student ascribed: "I am more confident in myself, in my nature, in my own capacity to learn, to grow, and loving myself and taking care of myself when I don't really reach and meet my ideal expectations of whom I'm going to be." DRBU's pedagogy resonates inside and outside the class with personal epiphanies and how they relate to others.

DRBU's pedagogical model allows for students to be reflective, develop confidence, and gain a broader sense of interconnectedness. While students were enthusiastic about a pedagogical model that did not place authority in only the teacher or text, students also shared that the pedagogy was new to them and an adjustment from traditional ways of learning. Thus, professors who teach at DRBU are also encountering pedagogy that they may not have been trained in. Furthermore, contemplative pedagogy is more new to the academic field, DRBU's pedagogical model could be further clarified and refined. While the faculty assess teaching practices regularly, student feedback could be beneficial for clarification of methodology.

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## **Embedding Self-Regulated Learning Interventions in an Accounting Classroom**

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Self-regulated learning skills have a positive impact on academic achievement, enabling graduates to become lifelong learners in professional settings. Although the importance of lifelong learning skills is well articulated in the literature, this study is the first to address concerns that class time devoted to developing such skills might impair students' acquisition of content knowledge. This study uses a quasi-experimental design within the context of an introductory accounting course, a difficult and conceptual course that provides a favorable context for the development of self-regulated learning skills. The treatment group received self-regulated learning interventions designed by the researcher and based on Zimmerman's model of the academic learning cycle (forethought, performance, and self-reflection). Such a powerful learning environment can induce changes in the mediating variables (i.e. self-efficacy, epistemological beliefs, metacognitive awareness, motivation, use of learning strategies, etc.) that, in turn, impact academic performance. Results of this study were obtained using multiple regressions and suggest that students' acquisition of technical knowledge, as measured by conventional exam scores, was not compromised when class time was allocated between self-regulated learning interventions and content instruction. Although benefits of the treatment were not immediate, the group receiving the self-regulated learning interventions outperformed the control group in terms of scores on exams administered in the latter part of the course. This study found no evidence of a "ceiling effect" but does provide limited support for the "Matthew effect," whereby higher ability students often reap the greatest benefit from interventions.

A review of the literature indicates that the beginning accounting class provides a favorable context for self-regulated interventions (Froman, 2001). The importance of conducting self-regulated learning interventions in regular classrooms (rather than in stand-alone courses) is well documented in the literature (Hattie, 2009). The accounting education literature contains only a single article related to self-regulated learning (Smith, 2001), and business education, in general, is nearly void of research related to self-regulated learning (Ragosta, 2010). Each of the three phases of the academic learning cycle was explored in the literature through the work of Zimmerman (1989) and others. The literature suggests that novice learners face learning challenges at each stage of the academic cycle (Bandura, 1986; Sharma, 1997). Self-defeating epistemological beliefs (Muis, 2007) and poor self-efficacy (Sharma, 1997) during the forethought phase can negatively impact learning before academic tasks are attempted. Novice learners lack prior knowledge and schemata (knowledge structures) that are critical when learning new content (Ausubel, 1968) and often default to ineffective memorization strategies (Hofer, 2001). Novice learners also often lack the "ability to know what you know" according to Stone (2000). Studies related to the mediating variables that ultimately affect impact academic performance were used to design the interventions associated with this study: metacognitive awareness (Schraw, 2001), self-efficacy (Multon, Brown, & Lent, 1991), epistemological beliefs (Paulsen & Feldman, 2007), schema development (Ambrose et al., 2010; Ausubel, 1986), and self-reflection (Zimmerman, 1998).

Using a quantitative, quasi-experimental design, a treatment group received a series of interventions whereby instruction focused on the process of learning as well as on regular course content. The control group received instruction based on course content only. Semester-long interventions were designed to establish a "dual focus" classroom in which students received instruction on regular course content while simultaneously participating in classroom activities designed to enhance their level of self-regulation. This study was conducted at a regional university with participants in this study being enrolled in six sections of an introductory accounting course. The control group consisted of 121 students enrolled in three sections of the course. The treatment group included 123 students enrolled in three sections of the course in the subsequent semester. All six sections were taught by the same instructor and were equivalent in terms of course materials (textbook, online homework system, and exams) and in terms of class size, number of meetings, and class time (day classes). The fundamental purpose of this study was to address the following research question: RQ1: How does the addition of self-regulated learning interventions to the introductory accounting course affect performance on conventional course exams? After addressing how the self-regulated learning interventions affect exam performance, it is then important to consider whether effects are related to individual differences in students. RQ2: Does a significant interaction exist between the independent grouping variable (control/treatment) and either of the independent variables, ACT score or GPA?

Research Question #1: Descriptive Statistics: For the first three course exams, the treatment group's mean exam scores were generally comparable to those of the control group (slightly higher on Exam 1 and slightly lower on Exams 2 and 3). By Exam 4, a sizeable gap in mean scores can be observed between the control and treatment group. The treatment group's mean exam score was 9.6 percent higher than the control group on this exam. On the comprehensive exam, the treatment group outperformed the control group by 3.1 percent. Statistical tests: After controlling for covariates (GPA, ACT, Major), the grouping variable (treatment or control group) is found to be a statistically significant predictor of exam performance by the fourth of four course exams, p

The results of this study suggest that classroom time can be spent "learning about learning" without compromising the acquisition of course content knowledge. Overall, the performance on five course examinations by students who received the intervention exceeded the performance of students who received only instruction related to course content. Considering that class time was divided between "the process of learning" and regular course content, students receiving the intervention may have experienced more efficient learning, and the true effectiveness of the training may have been greater than reflected in the resulting statistics. An interesting and important pattern can be observed when the statistical results related to this study's two research questions are synthesized. On the first two exams, no statistically significant differences are found between the control and treatment groups in terms of mean exam scores. Furthermore, no statistically significant interaction is observed between the grouping variable and either ACT scores or GPA. Essentially, no effects related to the interventions are observable. This is not surprising because the interventions were designed to affect both attitudes and learning behaviors. Attitudes and behaviors of college students are often resistant to change. By Exam 3, interaction between the grouping variable and ACT becomes significant, indicating that the effect of the treatment depends on the student's ACT score. Students with higher ACT scores are benefiting from receiving the interventions but lower ACT students are negatively impacted by the treatment. By Exam 4, the treatment group is significantly outperforming the control group but no statistically significant interaction is present. In other words, the benefits of the treatment are now accruing to all ACT levels.

## **Engineering Faculty Perceptions on Software Technologies and the Support of These Technologies** Elizabeth Spingola, Virginia Tech; Devin Ketchum

Within Virginia Tech, the instructional technology team out of the IT office in engineering creates and distributes different tutorials and conduct workshops and training on different educational softwares. The purpose of this study was to investigate the needs of the faculty members and instructors for the College of Engineering as it pertains to the educational software supported currently and the preferred direction of these tutorials. This survey was distributed through the engineering faculty and graduate student listservs to try to reach a large and diverse population. The email sent out included the link to the survey and statement describing the purpose of the study. The findings of this study includes: a better understanding of the usefulness of the instructional technology support given, and the preferred direction of this office.

In higher education, there is technological dichotomy between students and educators. Students use technology on a daily basis and can see the contributions that technology has inside the classroom. On the other hand, there are educators that view new technology as cumbersome. According to Watkins and Mazur, “a single introductory course can have an impact on student persistence in STEM majors” (p. 37). This means that if students are not actively engaged in the subject of the class they can lose interest in their chosen field of study. It is then put on the educators’ shoulders to keep students engaged and still get the subject matter across to their students clearly and concisely. According to a study performed in 2013, digital technology was found to be an integral part of the students’ education (Henderson et al., 2015). This conclusion was gathered on the classrooms that already have technology integrated into the presentation of educational material. These facts being stated, there was also a study conducted on educators and their views on technology in the classroom. The research concluded that “more complex technology, from a user’s perspective, has a greater chance of leading to abandonment than simpler technology” (Aldunate et al., 2013). This last fact is the motivation behind our survey and development of new and existing tutorials and manuals.

Both qualitative and quantitative data was collected giving the Data was collated using a qualtrics survey. Both engineering faculty members and engineering graduate students were sent over email listservs containing the survey requesting participation. Quantitative data from the survey was collected and exported to a statistical software. Qualitative data was exported into excel and coded using thematic coding and keywords. Codes and keywords were, also, kept within excel. All of this data was stored on a locked computer with the researchers only knowing the password with no personally identifying information connected with the data.

After the survey closed, the researchers exported the quantitative data into SPSS and conducted statistical analysis. Qualitative data was coded in excel. Through this analysis, the researchers found many of the instructional technology tools supported through the College of Engineering Instructional Technology Support team are being used within the classroom by the professors and instructors, however, many instructors and professors did not encourage their students to use the same tools. Additionally, a few professors, within the qualitative data, strongly mentioned the desire to have more traditional aspects of the classroom supported, such as chalkboards and whiteboards. Finally, some instructors and teaching faculty members mentioned new technologies that were not supported and were new to the instructional technology team. These tools are worth exploring and potentially supporting through tutorials and workshops.

Some faculty express the desire to learn new techniques on already supported software and other faculty and instructors expressed a desire to learn new technologies if they would be beneficial to their students’ learning. Additionally, faculty and instructors mentioned wanting different methods of support including phone support, real time chat, workshop, email support, and links to online videos and blogs. Through understanding the needs and desires for Engineering faculty members and engineering instructional staff, the College of Engineering Instructional Technology Support Team can better understand how to best support them. Because of this study, new tutorials, workshops, and support is in development and will be provided for the teaching members of the engineering college.

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## **Examination of the relationship between the use of collaborative, high engagement strategies in freshman courses and student persistence and course passing rate outcomes**

Joseph Shields, Gibson Conslting (in collaboration with Texas Wesleyan University); Marshall Garland; Danial Hoepfner; Sarah Cannon

The AVID for Higher Education (AHE) Student Success Initiative was created in response to a growing need at institutions of higher education to increase student persistence and graduation. The focus of the AHE initiative is to transform college-level instruction from the lecture-based transmission form to high engagement, collaborative learning in freshman courses and beyond. In this study, we utilize a mixed method, quasi-experimental research design to assess the extent to which AHE was implemented with fidelity at nine participating colleges and universities located in seven different states. For each of three cohorts of college freshmen who entered college for the first time in fall 2014, fall 2015, and fall 2016, we observed treatment and control sections of freshman courses taught by faculty who participated in AVID professional development (PD) and those who did not, and administered surveys to students in treatment and control course sections. We also conducted focus groups with faculty, and administered an online survey to faculty regarding how (if at all) participation in PD has impacted their instructional practices. Lastly, we used student-level data collected from each of the participating institutions to assess the relationship between program participation and student persistence in college and course passing rates. Study results reveal that faculty who participated in AVID PD were more likely to utilize collaborative and active learning strategies, including group work and reflective writing activities, than nonparticipating faculty. At participating institutions implementing AVID for Higher Education with fidelity, higher persistence rates were consistently observed and higher course passing rates were observed.

Of all the factors that bear on student persistence and success, that which is potentially the most important—but infrequently subject to rigorous study—has been pedagogy. Owing to the autonomy of postsecondary faculty and the absence of standardized course-based assessments, we have little usable evidence upon which to build an understanding of pedagogical practices—or their implications for student learning and success. Fortunately, developments in online learning and learning management systems have made it possible to conduct rigorous research about the effects of intensive and interactive models of learning. Early work at Carnegie Mellon University demonstrated that students using an interactive online learning statistics course achieved the same or better learning outcomes as students in the traditional course in half the time (Lovett, Meyer, & Thille, 2008). Of all the factors that bear on student persistence and success, that which is potentially the most important—but infrequently subject to rigorous study—has been pedagogy. An important line of pedagogical inquiry focuses on student-centered learning approaches and finds that student-centered learning strategies—in contrast to the traditional lecture-based format—significantly improve education outcomes (Amelink 2005; Freeman et al., 2014; Hodara, 2011). A recent meta-analysis comparing classrooms engaged in student-centered learning with classrooms using traditional lecture-based format shows significant and substantive effects, (Freeman et al., 2014). Positive associations have been found between the use of student-centered learning approaches in a specific course or type of course and a range of undergraduate student outcomes, including course performance, such as scores on content knowledge exams (Fencel & Scheel, 2005; Freeman et al., 2014); class engagement and processing skills (e.g., Ebert-May et al., 1997); and persistence (e.g., Pascarella, Seifert, & Whitt, 2008).

In this study, we utilize a mixed method, quasi-experimental research design to assess the extent to which AHE was implemented with fidelity at nine participating colleges and universities located in seven different states. For each of three cohorts of college freshmen who entered college for the first time in fall 2014, fall 2015, and fall 2016, we observed treatment and control sections of freshman courses taught by faculty who participated in AVID professional development (PD) and those who did not, and administered surveys to students in treatment and control course sections. We also conducted focus groups with faculty, and administered an online survey to faculty regarding how (if at all) participation in PD has impacted their instructional practices. Qualitative data and survey data collected at each of the participating institutions in fall 2014, 2015, and 2016, were analyzed descriptively to assess changes in program delivery and teaching methods over time. Lastly, we used student-level data collected from each of the participating institutions to assess the relationship between program participation and student persistence in college (freshman fall-to-spring, freshman-to-sophomore, freshman-to-junior persistence, freshman-to-senior persistence) and course passing rates (freshman year and sophomore year) for first-time, full-time students entering college in fall 2014, fall 2015, and fall 2016. We calculated propensity score reweighted and regression

adjusted average treatment effect estimates for persistence rate outcome measures and course passing rate outcome measures. Statistical models were run separately for each of the participating colleges and universities. This study, which follows three cohorts of students through fall 2018, will contribute to the literature on the impact of student success programs and pedagogical changes on higher education student outcomes.

Approximately two thirds of higher education faculty members who attended AVID professional development indicated that the training resulted in them using collaborative and active learning strategies more frequently in the courses they teach. Student survey results revealed a few important things about the students who participated in targeted freshman courses course, whose curriculum emphasizes skills AVID deems essential for success after high school. First, students responded that faculty members who participated in AVID professional learning opportunities were more inclined to use active and collaborative learning strategies – as well as skill-based content like effective reading, time management, critical thinking and inquiry, and test-taking strategies – in those courses than faculty members who did not receive such development. Second, regardless of whether the course was taught by an AVID-trained faculty member, when students experienced high levels of student-centered teaching and content, they were significantly more likely to say the course made them more confident in their abilities to be successful college students. Those students in turn were also more likely to say they would participate in peer study groups and access postsecondary resources that can help them succeed in college. College persistence results at three institutions that implemented the AHE program with fidelity were consistently more positive for the AVID group than a comparison group of similar students who did not participate in the program. For example, college students at two 4-year institutions who were enrolled in the courses taught by AVID-trained faculty members were more likely to return to those same colleges in the spring of their freshman year, for their sophomore year, and for their junior year than students in a course that was not taught by AVID-trained faculty. Similar results were observed for course passing rate outcomes at these institutions.

It is clear from this evaluation of the AHE Student Success Initiative that implementation fidelity and programmatic intentionality are critical to the success of AHE programs. Including components that connect students to one another, to faculty, and to university resources through the use of student-centered instructional approaches are critical AHE components, and when present, led to consistently positive institutional results during the first three years of this study.

## Examining Ethics Curriculum and Learning with Graduate Students

Carol Mullen, Virginia Tech

Best practices can help prepare graduate students for the ethical challenges of leading schools and districts in these difficult times. This completed research, a scholarly inquiry of graduate student learning about ethics, has two purposes: (1) to review the literature on ethics in educational leadership studies, and (2) examine an ethics unit that was designed to raise awareness of ethics. A yearlong study was conducted with master's cohorts of preservice leaders (N = 21) enrolled in a principal preparation program. The new ethics unit was implemented in 2016 over two academic semesters. Research questions guiding study of the piloted curriculum are: (1) What literature discusses concepts of ethics, ethical leadership, and ethics curriculum? (2) What are preservice leaders' understandings of a yearlong ethics unit? Qualitative methods used for reporting data are a targeted literature review and a document analysis of assignments. Topics of ethics in the literature revolve around leadership preparation standards and social justice orientations for aspiring professionals. The analysis of student assignments suggest that master's cohorts share an overriding moral view: all school leaders need to be committed to preK–12 students' interests as an overarching professional ethic. They assigned value in this regard to student interests, followed by student success, needs, learning, and engagement. Ideas for graduate-level pedagogy and research end the discussion.

In leadership studies of ethics, authors compare ethics and morals. Morals is defined as abstract principles and tenets (Starratt, 2014), such as preK–12 students' best interests (Shapiro & Stefkovich, 2016). Ethics is sometimes used interchangeably with morals. Other scholars, though, differentiate ethics, defining it as morals in action and intelligent decision making in complex situations. To Starratt (2014), ethics concerns moral action and making choices between “actions good and bad,” and right and wrong (pp. 69–70). However, such distinctions are not always discernible in the daily toil of leaders. School-and-district leaders are entrusted with educating within national contexts of social and political unrest. There are urgent calls for ethical preparation and action, so school leaders will not damage their communities. Fulfilling obligations as a leader involves much more than competently managing schools, summoning “a moral imperative for the profession to serve the ‘best interests of the student’” (Shapiro & Stefkovich, 2016, p. 25). Despite the ambiguity of preK–12 student interests as a moral compass for leadership, it has been made into a standard. The 2015 Professional Standards for Educational Leaders (PSEL) Standards read: “Effective educational leaders act ethically and according to professional norms to promote each student's academic success and well-being” (National Policy Board for Educational Administration [NPBEA], 2015, p. 10). The topic of ethics is on trend with professional standards and the national political climate. Shapiro and Stefkovich's (2016) framework (i.e., four ethics frames—justice, critique, care, and the profession) relies on the profession ethic. Overarching, the profession ethic encompasses ethical administrative conduct and consciousness raising in service of diverse groups.

**Literature Review Strategies** To identify relevant and influential empirical as well as theoretical sources, Internet databases were searched. Descriptors used were ethics, ethical leadership, and ethics curriculum. Literature was identified on ethics in high-impact journals from 1991 to 2017, as well as books. ERIC from WorldCat and Education Research Complete from EBSCOhost identified articles. **Pedagogic Research Strategies** Ethics papers. For the first part of the ethics unit (Educational Foundations), participants produced an ethics paper. This allowed for reflection on concepts of ethics and ethical leadership. Presentations of papers. In the ethics unit's second part (Curriculum Leadership), participants interpreted their papers visually and presented them while being broadcasted live. This crossover exercise responded to Shapiro and Stefkovich's (2016) call for all leaders to have a sense of themselves and their beliefs, which takes time. **Survey.** The two cohorts anonymously responded to an electronic survey administered after the graded ethics unit. Open-ended questions prompted views of ethics while the learning was fresh but without directing responses. Receiving authentic feedback from everyone was the goal. **Participants.** For this yearlong principal preparation study, graduate students (N = 21) took spring and fall courses in their final year. The 14 females and 7 males reported their ethnicity as White, except for 2 as American Indian and 1 as African American. Ages ranged from 25 to 50 years. Eleven worked in a rural area, others in towns. Five were central-office staff. The rest were teaching in elementary, middle, and high schools. **Setting.** This 2-year principal preparation program was being offered at a U.S. university within a mid-Atlantic region. The cohorts took the courses at the same time.

The cohorts were collapsed into a single unit. Analysis was of participants' conceptions of ethics and ethical leadership vis-à-vis this data set: (1) ethics papers (126 single-spaced typed pages, total; spring 2016); (2) verbal presentations of the ethics papers using self-created visuals and notes (the transcribed audio-recording was 44 pages; fall 2016), and (3) responses to the survey. The cohort program remained constant, and the course sequence unfolded as planned—all participants wrote and presented the ethics paper. A qualitative document analysis (Stage & Manning, 2003) was performed of these documents. A basic frequency count used keywords (codes) to arrive at emergent patterns. Codes were used for searching the data. Word files were entered into NVivo 11. A graduate researcher organized it using the keywords. The researcher–professor independently manually coded the data using the keywords list to identify any differences in the results (none were found). Constant comparisons were made between them during three data sessions. They arrived at inter-rater reliability for the initial keywords. Being committed to preK–12 students' interests as a professional ethic was participants' salient view. In their assignments, they had assigned primary value for leaders to student interests, followed by student success, needs, learning, and engagement. A gap was discovered in the knowledge base with a pressing call by researchers for ethics study of leadership programs. Solicited are ethics theories for guiding graduate development and leadership preparation (Greer, Searby, & Thoma, 2015). Researchers concur that acting in preK–12 students' best interests is expected of leaders. In fact, this action is codified as a tenet of the leadership profession, encapsulating the ethics of care, critique, and justice.

Teaching ethics in graduate schools is critical for preparing leaders to have awareness of, and readiness for, pluralistic learning environments. As Beckner (2003) indicates, while leadership faculty profess to encourage ethical leadership and learning, principal preparation programs have responsibility for producing graduates at an entirely new level. The teaching of ethics is thus essential. Ethics in such leadership programs can be strengthened. A continuous curriculum is recommended over a discrete unit or course only. Case applications are useful. Graduate students can engage thoughtfully around ethical cases. These generate dialogue on ethics within a safe context. The cohorts appreciated learning from their peers and articulating different viewpoints on ethical dilemmas in schooling. Grounding the cases through comparisons with their own contexts, activities were more meaningful and realistic. Cases dealing with complex ethical situations include Tenuto, Gardiner, and Yamamoto (2016) and Harris, Ballenger, & Mixon (2016). Graduate students, nationwide, are probably more challenged than imagined when it comes to the changing roles of leadership. An ethical mindset (or critical consciousness) is a crucial point for modernizing coursework. Such standards as “safeguard[ing] individual freedom and responsibility, equity, social justice, community, and diversity” (NPBEA, 2015, p. 10) are guides for leadership responsibility and sensitivity in action. Much work lies ahead for developing ethics curriculum as a centerpiece of learning and readiness for tomorrow's leaders. Traditional programs emphasize administrative values of efficiency, effectiveness, and decision making. Pedagogically, more attention is needed on morality in action--ethics--and research on ethics curriculum (Bull & McCarthy, 1995).

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## Exploring predictors of completion in a Massive Open Online Course

Qing Zhang, Virginia Tech; Deyu Hu, Virginia Tech

This study investigates how variables, including learner demographics, placement in a group, motivations of taking a course and other factors, may affect learner's Massive Open Online Course (MOOC) completion. A binary logistic regression model is created to identify statistical significant factors pertaining to MOOC completion. Data on those variables, such as age, gender, English proficiency, education level, and motivations of taking this course were collected via a pre-course survey, and course completion records were collected through Coursera database. The results of this study indicate that learners' stated intention of completion, age, reputation of MOOC providing institution, professor, and academic program are important predictors of MOOC's completion rate. Learners of age over 50 who view the institution that offers the MOOC as important and with high intention of completing the course are more likely to complete. Based on these findings, we hope that MOOC instructors and providers will be aware of students' motivations and demographics and use this information to organize course content and online activities to better support students and help them succeed in MOOC.

Many studies have been conducted to identify factors that contribute to MOOC completion. The findings vary across those studies. Cisel (2014) indicated learner performance in MOOC was highly correlated with learner's geographic location, employment status, and time constraints. Unemployed learners from high Human Development Index (HDI) countries were more likely to complete a course. Other variables influencing MOOC completion include years of education (Guo & Reinecke, 2014; Schulze, 2014), friends' performance in a MOOC (Brown et al., 2015), prior online learning experience (Morris, Hotchkiss, & Swinnerton, 2015), English Proficiency (Schulze, 2014; Konstan, Walker, Brooks, Brown, & Ekstrand, 2015; Engle, Mankoff, & Carbrey, 2015), number of posts and number of video watched (Bonafini et al., 2017), gender (Breslow et al., 2013; Schulze, 2014; Konstan et al., 2015), and age (Breslow et al., 2013; Schulze, 2014; Guo & Reinecke, 2014; Konstan et al., 2015; Morris et al., 2015). Most of the studies agree that there is a positive relationship between age and MOOC completion rate. Zhang et al. (2016) concluded that learners with age over 40 who intended to complete the course achieved higher MOOC completion rates. In addition to the above factors on learners that educators do not have much control of, a large amount of researches suggested assigning participants to work in groups could enhance learning (Hiltz, 1998; Berger & Wild, 2016). By working with others in a MOOC, learners could assist each other in the learning process (Yuan & Powell, 2013) and improve learning outcomes (Williams, Duray, & Reddy, 2006) through peer assistance and assessment (Gua?rdia, 2013). Online learning media also played an important role in support of group work and communication (Walther & Boyd, 2002), for example, video conferencing tools allow real time communications and interactions among group members.

This study was conducted in the Creativity, Innovation, and Change (CIC) MOOC offered in Coursera to identify statistically significant variables that affect MOOC completion. A binomial logistic regression model was developed to achieve these goals. The completion level was treated as a binary dependent variable with the result of either completing the course or not. This study investigates the following research questions: • What are the characteristics of MOOC learners who participated in this study? • Which factors predict the probability of MOOC completion? Participants in this study were recruited from CIC MOOC offered through Coursera platform (Jablokow, Matson, & Velegol, 2014). Prior to the beginning of the course, a call for participants to work in online groups was sent out to MOOC learners. Learners who responded with the interest of working in online groups received a pre-course survey, which inquired about their demographic information, motivations of taking this course, and so on. Participants were assigned into groups following the order of their preferred communication language, intention of completion, and mode of communication (synchronous text, asynchronous text, or synchronous video and audio) (Zhang et al., 2016). Data Sources Pre-course survey. At the beginning of this course, a pre-course survey was sent to participants who indicated their interests in working in online groups to collect their demographic information, such as gender, age, level of education, level of English proficiency, previous online learning experience, and employment status, and reasons for taking this course, such as personal interest, alignment with academic program, and job promotion. Completion data. Course completion data were collected through Coursera with three levels of completion: none, normal, and distinction. In this paper, these three levels of completion were recoded as a binary variable showing two levels of course completion: Complete (the combination of normal completion and completion with distinction) and Non-Complete.

Findings on learner characteristics This study contained a larger percentage of female (61.3%) than male (38.7%) students. Participants classified themselves on a scale of four English proficiency levels as Poor (6.1%), Basic (23.7%), Fluent (41.7%) and Native (28.5%). Participants were also categorized into six age levels, which were ages 10-19 (10.8%), 20-29 (35.8%), 30-39 (20.5%), 40-49 (14.7%), and 60 and above (18.2%). Among our participants, 65% of them indicated their intention of completing the entire course. Findings on Factors Predicting the Probability of MOOC Completion Using stepwise binomial logistic regression, we started our analysis by performing the saturated model to mapping out which factors may affect the probability of MOOC completion. These factors include participant demographics such as education level, age, gender, employment status (full time/part time/not working), and English proficiency. Factors also comprise students assigned to work in groups accordingly to their preferences, students' motivation of taking the MOOC such as personal interest, interest in connecting with others, course offered by a certain institution or professor that they like, relationship of MOOC content to their academic program, relationship of MOOC content to their current job responsibilities or potential skills that they might need in their future job, intention of completion, earn a certificate, and friends' taking the same MOOC. Results from the saturated model shows that age, institution, professor, academic program, and intention of completion were significant ( $p$ -value  $< 0.05$ ) regarding course completion (AIC = 752.46 and G2 = 750.12).

This study shows that age, institution hosting a MOOC, alignment with students' academic needs, and students' intention to complete the course, affect the probability of course completion. The results are in line with the literature (Schulze, 2014; Morris et al., 2015; Zhang et al., 2016) that older participants tend to achieve higher course completion rate. In a market with a lot of options, MOOC offering institutions should focus on making the MOOC content as clear as possible in order to attract students who are looking for a MOOC that is aligned with their academic expectations and avoid curious enrollment, which may diminish subsequent students' drop out. Based on the idea that 'MOOCs enable learning with the best' (Davis et al., 2014, p.06), we intuitively known that institution reputation may motivate students' enrollment in MOOCs. This study confirmed the intuition by showing how much the institution reputation could have the potential to affect the probability of students completing a MOOC. The higher learners rated their motivation of taking this MOOC because of the institution that offers the MOOC, the more likely they would complete the course. On the other hand, it is also possible that the creation of a MOOC may enhance an institution's reputation. Jansen and Schuwer (2015) reported that institutions used MOOC to promote its visibilities. In addition, the pre-course survey serves as an effective tool to identify at-risk students based on their responses to age, intention of completion, and motivations questions, which are the main predictors of course completion. Students who are identified as unlikely to complete the course will be assigned into treatment condition, e.g. work with a Teaching Assistant or other students in completing the assignments. Our findings also indicate that assigning students to work in online groups didn't work at this time, we may adjust the grouping mechanism and provide support and incentives for group work in future studies.

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## **Exploring the Relationship Between Teaching Support Services and Adjunct Faculty's Teaching Self-Efficacy: A Mixed Methods Study**

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Adjunct faculty teach over 50% of classes in U.S. higher education, but little is known about factors that influence their teaching beliefs. Teaching self-efficacy, beliefs in one's ability to successfully complete a given teaching task in a specific context, has been linked to better instruction, the utilization of a wider range of instructional techniques, and persistence in helping struggling students (Tschannen-Moran, Wolfolk Hoy & Hoy, 1998). In the higher education literature, there is scant literature focusing on the relationship between instructional support services and teaching self-efficacy beliefs, especially among adjunct faculty. This study offers a significant contribution in this area. As part of a larger study, the relationship between community college adjunct faculty's teaching self-efficacy beliefs and teaching support services were explored using mixed methods. Instructors at Mid-Atlantic community college (pseudonym MACC) completed a modified version of the College Teaching Self-Efficacy Scale (Prieto Navarro, 2006). Subsequent interviews explained noteworthy survey data. Quantitative and qualitative data were merged to form an overall interpretation of the relationship between teaching support services and teaching self-efficacy. Mentoring from a more experienced faculty was rated as most influential followed by student evaluations and trainings. Correlational analyses revealed significant positive relationships between student evaluations, overall teaching self-efficacy, and efficacy beliefs in the areas of instructional skills, and creating a positive environment. Convocation was also related to higher scores in efficacy for instructional skills and overall teaching self-efficacy. Common elements promoting teaching self-efficacy across highly influential support services are feedback and opportunities to share resources. Differences in specific teaching support needs emerged based on experience. Findings can be used to refine existing teaching support services and design new opportunities that will promote teaching self-efficacy beliefs and improve instruction and subsequent student learning.

A well-researched approach to understanding instructional decisions and behaviors in K-12 teacher motivation literature centers on teachers' beliefs. Fives and Buehl (2012) proposed teacher beliefs serve as filters for interpretation, frames for defining problems, and guides for action. Tschannen-Moran et al., (1998) highlighted the relationship between teaching self-efficacy beliefs; i.e., perceptions of competence for specific teaching tasks in a particular setting and instructional behaviors. They asserted teachers with higher efficacy persevere through challenges, use a variety of instructional techniques, and are more confident in helping struggling students. In the higher education context, Prieto Navarro (2005) demonstrated faculty's efficacy beliefs influenced their instructional behaviors. Lack of training in pedagogical skills and institutional practices that fail to adequately prepare adjunct faculty to teach may impact their teaching self-efficacy, their instruction, and subsequent student learning (Umbach, 2007). A few researchers have broken ground in this area (e.g. Jolley, Cross, & Bryant, 2014; Baldwin & Wawrzynski, 2011). Diegel (2013) reported adjunct faculty valued professional development opportunities and cited building instructional skills, opportunities for connection with other faculty, and feeling valued as benefits. Further, Rutz et al. (2012) demonstrated the relationship between faculty participation in professional development focusing on teaching skills and student academic performance. Findings showed that teaching strategies improved after training in pedagogy and subsequent improvement of critical thinking and student work was noted. Further, in their exploration of the teaching self-efficacy beliefs of graduate teaching assistants, DeChenne, Enochs, and Needham (2012) found that efficacy beliefs in the area of instructional skills was positively correlated with teaching experience and professional development improved teaching self-efficacy. Christensen (2012) identified doubts about teaching self-efficacy related to lack of teaching-related supports as an emergent theme in phenomenological study of adjunct faculty's motivations.

A key research question guiding this study asked, "What is the relationship between teaching-related support services provided by the college and adjunct faculty's teaching self-efficacy?" An explanatory sequential mixed methods design was used with the rationale that the combination of quantitative and qualitative methods "...provides a better understanding of research problems than either approach alone" (Creswell & Plano Clark, 2011, p. 5). At MACC, approximately 460 adjunct faculty teach over 75% of the courses. MACC was selected because it offers support services beyond student evaluations of teaching (SETs) including an annual convocation for adjunct faculty, formal mentoring relationships with experienced faculty, a comprehensive evaluation process, and trainings. First, a modified version of the College Teaching Self-Efficacy Scale (Prieto Navarro, 2006) was

administered online. This survey was designed for use with faculty based on best teaching practices research in higher education. Closed and open-ended questions focusing on teaching support services were added. The survey was subjected to multiple content review processes and was piloted. After in-person recruiting efforts, the survey link was emailed to all adjunct faculty at the College and 159 completed the survey. The sample was an accurate representation of the population of instructors at the College. For the interviews, a diverse sample of adjunct instructors (n = 9) was identified via purposeful sampling from lists of potential participants provided by College administrators. Qualitative data from open-ended survey responses and interviews were organized and analyzed using Atlas.ti and coded using vivo coding (Corbin & Strauss, 2015). Trustworthiness measures included respondent validation and achieving intercoder reliability. Data were merged to create an overall interpretation of the relationship between teaching support services and teaching self-efficacy beliefs.

Teaching self-efficacy beliefs of adjunct faculty at MACC were high. This was an experienced group of educators with an average of 10 years of higher education teaching experience. Analysis indicated that the modified version of the CTSES used in the study was reliable ( $\alpha = .97$ ). Principle components factor analysis yielded three distinct factors: (a) instructional skills, (b) creating a positive classroom environment, and (c) assessing student learning. On a six-point scale with six meaning completely confident and one meaning not at all confident, creating a positive classroom environment was scored highest (M = 5.20), followed by instructional skills (M = 5.13), and overall teaching self-efficacy (M = 5.12). At (M = 4.94) assessing student learning was lowest. Correlational analyses were conducted to explore the relationship between teaching self-efficacy beliefs in each of the three areas and teaching support services. Student evaluations of teaching predicted higher efficacy beliefs in instructional skills, creating a positive environment, and overall teaching self-efficacy. Attending convocation predicted higher beliefs in the same three areas. Neither was significantly related to efficacy for assessing student learning. No statistically significant relationships were found between efficacy beliefs and trainings, adjunct evaluation process, or mentoring relationships. However, evidence for the positive influence of these services emerged from the second phase of data collection. A common thread revealed in subsequent interviews was affordances for feedback were key sources of teaching self-efficacy beliefs. Different needs for teaching support emerged based on teaching experience. New adjunct faculty needed guidance in policies, classroom procedures, and expectations at onboarding, and more feedback on teaching. Experienced instructors expressed needs for opportunities to develop an expanded repertoire of teaching skills. Both wanted to learn more about teaching a range of learners and training in learning assessment and grading.

This study represents significant progress in exploring the relationship between teaching support services and teaching self-efficacy beliefs in multiple areas of teaching. Key insights into helpful elements of each of the services were revealed. Attending convocation predicted overall teaching self-efficacy in the areas of instructional skills and creating a positive learning environment, but not for assessing student learning. The aspect of convocation that was identified as most helpful was meeting with departmental colleagues. Adjunct faculty expressed valuing opportunities to share teaching ideas and the opportunity for collegiality. Though not statistically significant, having an experienced faculty mentor was rated as most influential in promoting teaching self-efficacy beliefs. One element of the mentoring relationship, classroom observation, was cited as particularly helpful. Mentors' feedback based on classroom visitation (online or in person) was a key source of teaching self-efficacy for new instructors. Feedback resulting from observations was also identified as a highly influential component of the adjunct evaluation process. Trainings did not emerge as significant predictors of teaching self-efficacy. However, instructors shared thoughts on trainings they found helpful. Blackboard trainings were most frequently commended. Instructors articulated benefits from trainings including exposure to new ideas and increased feelings of connection. Limited time on campus and scheduling conflicts impeded training attendance. Flexible scheduling and creative formats were suggested. From this study, it is clear that teaching self-efficacy and feeling connected can be improved not only by offering training in instructional techniques, but also by providing opportunities for feedback and interaction with colleagues. This study's findings can be used to refine and design teaching support services. Considering one's own teaching, it is recommended that instructors welcome feedback opportunities, whether formal or informal, from colleagues or mentors, and seek ways to share teaching resources. This will promote excellence in teaching and collegiality among all faculty.

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## **Factors affecting student self-efficacy in asynchronous online learners**

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This study explored the experiences of former and current graduate and undergraduate online students for possible factors that may have affected self-efficacy perceptions while completing online course requirements. Self-efficacy is described as a person's judgment of his or her ability to successfully complete a learning or performance task (Bandura, 1997). Using an exploratory sequential mixed methods approach, this study explored the research question, What factors affect the self-efficacy of asynchronous online learners? in three phases. Phase I included conducting semi-structured interviews which produced data from 11 current and previous asynchronous online learners to be transcribed and analyzed. Using the findings from Phase I, Phase II included creating a survey instrument, reviewed by experts in the fields of education, educational psychology, and educational research, to be used to reach a broader sample of current or previous asynchronous online learners. Phase III included collecting and analyzing survey responses from 215 current and previous asynchronous online learners. The findings from this research showed several factors reported by participants as being present or absent in their online learning experiences. These factors were reported by participants as having had a perceived positive, negative or no effect on their self-efficacy beliefs at some point during their online coursework experience. Findings suggest possible directions for more intervention research on the asynchronous online course design.

Before online learning's popularity and even availability, education and psychology researchers were using the construct of self-efficacy to help them in their research on understanding human behavior, learning, and performance (Bandura, 1986; 1997; Cronbach & Meehl, 1955; Schunk, 1991; Pintrich & De Groot, 1990.) Much of the educational research on self-efficacy's influence on learner behavior and academic success has been performed in classrooms and were part of intervention studies designed to affect a student's self-efficacy to enhance learning. As the number of students that use online distance learning increases, more studies can be found that show self-efficacy to still be a relevant research topic (Alqurashi, 2016; Tsai, Chuang, Liang, & Tsai, 2011; Hodges & Kim, 2010; Jones, Ramanau, Cross & Healing, 2010; Swingle, 2012). However, unlike the history of classroom intervention studies, there is a lack of these types of studies in the online learning research literature. Where research can be expanded upon is in the area of intervention studies designed to enhance self-efficacy beliefs in the online learning environment. For self-efficacy intervention studies to be effective, it will be necessary to understand online learners' experiences and the factors that affect their self-efficacy judgments in order to establish target areas for intervention. This study was designed to establish possible areas to target in asynchronous online courses.

An exploratory sequential mixed methods design was used to conduct this study. A mixed methods approach was chosen in order to explore the research question more holistically. "While the quantitative method provides an objective measure of reality, the qualitative method allows the researcher to explore and better understand the complexity of a phenomenon" (Williams, 2007, p. 70). Research that addresses questions surrounding student perceptions are complex, and the use of either quantitative or qualitative methods alone are not always sufficient to capture a thorough understanding of a phenomenon (Schunk & Meece, 1992). Such was the case with this mixed methods study that explored the complex nature of the experiences that affect the self-efficacy of asynchronous online learners. Phase I of this study used interviews in order to gather the rich data that they can provide. Phase II of the study used the findings from the initial phase to develop a survey tool that was reviewed by experts and ultimately used in a third and final phase to reach a larger sample of asynchronous online learners.

This study's findings describe specific factors that participants reported as having a perceived effect on their self-efficacy for their online coursework at some point during their online learning experiences. Although this exploratory study was not designed to determine the strength of participant self-efficacy beliefs or how many factors affected each participant in specific courses, the study does provide exploratory and preliminary findings that have implications in the field of instructional design and can add to the research literature. Immediately noticeable in the findings were the many factors reported by participants as having had a perceived effect on their ability beliefs, at some level, during their online learning experiences. A closer look revealed some interesting response patterns. There were many areas where participants showed a strong agreement in perceived positive effects but there also were areas where participants showed a strong agreement in perceived negative effects. Largest positive effect agreement. The largest agreement among participants (93%) was with those who reported perceived positive effects from the presence of a Mapped-out schedule of the entire course. Showing similar agreement strength, were

perceived positive effects reported from the presence of Interest (92%), and Detailed Syllabus (92%). Largest negative effect agreement. The largest perceived negative effect agreement (89%) was from the presence of Uncertainty about being on the right track about an assignment or project. Similarly, an 86% perceived negative effect agreement from the presence of Uncertainty about instructor expectations about an assignment and 86% perceived negative effect agreement from the presence of Misunderstanding the requirements of an assignment, were reported. Other findings include areas involving Communication, Course/Program Design, student Challenges, Strategy Use, and Mastery Performance.

This study's findings show the perceived importance of the presence or absence of certain course design elements to participants' self-efficacy judgments. There are practical implications for online instructors and online distance learning instructional designers. Factors that seem to be most important to participants' self-efficacy perceptions included having access to a) a mapped-out schedule of the course; b) a detailed syllabus; and c) access to resources needed to successfully complete the course tasks. These specific findings may provide online instructors with incentives to modify, if necessary, current course designs, pedagogical practices, and resource requirements that may have an immediate and positive effect on student self-efficacy. This study's findings on the effects of instructor feedback (or lack thereof), can also provide instructors with information that can immediately be implemented into instructional practices. By providing opportunities for student and instructor interaction, as well as opportunities for relevant instructor feedback, it is possible the effect on student self-efficacy perceptions will be positive. Findings related to instructional design involve the designers' task of analyzing the characteristics of the learners they are designing for and which variables will have a significant effect on learning achievement (Dick, Carey & Carey, 2005). Although this study's findings are preliminary, they demonstrate a strong agreement among participants that their self-efficacy perceptions fluctuated during their online coursework with the presence or absence of factors associated with course design. Decades of research has demonstrated that students' self-perceptions are malleable and this study's findings indicate this may be the case in an online learning environment as well.

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## **Faculty Perspectives on Innovative Math-Science Integrated Pedagogy: A Multi-Program Qualitative Study**

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A group of faculty and graduate assistants formed by the Office of Undergraduate Education at Virginia Tech (VT) has recently examined the work of several science education programs that have been implemented at VT over the past seven years. Students interested in fields such as physics, chemistry, and biology often enroll in or are recruited for the Summer Bridge Program (SBP), the Integrated Science Curriculum (ISC), or the Physics First Year Experience (FYE) Program. These programs teach quantitative tools in applied contexts, utilize SCALE-UP active learning. These programs also vary in terms of resources needed and relations to traditional math classes, especially with regard to faculty and administrators who need them. Our research questions revolve around faculty and administrator perceptions of the implementation of these programs, their impact, and the support mechanisms behind them. We conducted semi-structured interviews with administrators and faculty regarding their perceptions on leading, teaching, and supporting these programs. Preliminary analysis indicates that faculty perceive students as successful in these innovative science education programs. They also perceived increased motivation, interest, and empowerment among students. Further, faculty reported that students may not have been fully prepared to enter a traditional classroom within their major after having an experienced innovative learning context. Through this research, we aspire to enhance the dialogue on active learning in science education. Declarations: This material is based upon work supported by the National Science Foundation under grant no. DUE-1544225. This study was approved by VT's IRB (#16-171).

A group of faculty and graduate assistants formed by the Office of Undergraduate Education at Virginia Tech (VT) has recently examined and scrutinized the work of several science education programs that have been implemented at VT over the past seven years. Faculty who lead these programs generally want to improve student success and increase retention in science majors. Students interested in fields such as physics, chemistry, and biology often enroll in or are recruited for the Summer Bridge Program (SBP), the Integrated Science Curriculum (ISC), or the Physics First Year Experience (FYE) Program. These programs teach quantitative tools in applied contexts, utilize SCALE-UP active learning (Beichner, 2007; Kuh, 2008; Singer et al., 2012), and apply strategies consistent with President Obama's recommendation that mathematics be taught in applied contexts by practitioners in other STEM fields (PCAST, 2012). A recent study identifies reasons students are not ready for math in college, including differences in pedagogical approaches in high school and college and lack of prior knowledge (Latterell & Frauenholtz, 2007). Further, some studies have been conducted on the transfer of "pure" mathematical skills into scientific contexts. In another study, students were not taught mathematics integrated within sciences, but were assessed on math embedded in subject areas (Britton et al., 2005). This approach sets the stage for integrated programs like those implemented at VT. The above programs vary in terms of resources needed and relations to traditional math classes, especially with regard to faculty and administrators who lead them. Though VT is well-positioned to foster pedagogical innovation in this way, more research is needed to identify ways in which instructors and other involved faculty can be supported in their efforts.

Our research questions are: 1. What are faculty/administrators' perceptions on shifting science pedagogies? 2. In what ways is the university supporting faculty/administrators in these programs' implementation? 3. Where do these changes in science pedagogy begin, and where is there resistance? 4. What is the impact of these programs on university communities (departments, colleges, extension)? Our sample comes from these programs: The SBP is a three-week program for freshman entering science majors. The SBP integrates the learning of mathematical skills through a problem- and project-based approach. The learning outcomes are pre-calculus including estimation, unit conversion, graphing, rate-of-change, functions and scientific notation. The ISC is a two-year course sequence that teaches the fundamentals of chemistry, calculus-based physics, and biology integrated with each other and with the mathematical sciences including linear algebra, statistics, and programming. The ISC prepares students to address problems from multiple perspectives. The Physics FYE is a course for all entering physics majors, including transfer students from community colleges. The theme of the first semester is Problem Solving. Students are introduced to creative mathematical reasoning through experiences that invoke key ways that physicists approach problem solving. We conducted semi-structured interviews with administrators and faculty regarding their perceptions on leading, teaching, and supporting these programs. Interviews were transcribed, open coded with NVivo 11 and consolidated into categories via thematic analysis (Braun & Clark, 2006). Given a lens of Lane's (2007) notions of

systemic change and the highly interpretive nature of our data, thematic analysis is appropriate since it does not impose a particular worldview.

Preliminary analysis indicates that faculty perceive students as successful in these innovative science education programs. Teaching faculty reported perceiving increased motivation, interest, and empowerment among students. Additionally, some faculty perceive disjointedness in co-teaching despite attempts to integrate the curriculum. Further, administrative faculty reported that students struggled to transition to the more traditionally taught courses as they progress in their majors despite having acquired the requisite quantitative tools. Final results, including tables of open codes and corresponding perceptual themes, will be presented.

Our paper will center on the findings of our research, namely the themes that emerged in our data and the relationship between those themes and student success in these particular science education programs. Specific to our research questions, we 1) found largely positive perceptions of shifting science education practices; 2) found that support is largely program- and department-internal except and resource-wise is grant funded; 3) changes begin either as inspired by professional development opportunities or ideas by individuals within the university, and resistance is experienced largely from those who prefer traditional teaching methods; and 4) these programs forge connections between faculty and off-campus entities that might not otherwise exist. Overall, we aspire to enhance the dialogue on innovative and active learning STEM pedagogy, especially from the perspectives of administrators and teaching faculty involved in the implementation of said programs. We will also discuss the strengths and challenges of conducting qualitative research under the aegis of these programs and the roles of participant-researchers involved.

## Flipping a Large Graduate Anatomy and Physiology Course: Lessons Learned

Richard Pierce, University of Santo Tomas

The purpose of this study was to investigate the impact of the flipped class instructional design on a large graduate, inter-professionally taught course. The research question that guided this study as: What impact did the flipped class have on the combined class practicum assessment scores and student cohort practicum assessment scores? A longitudinal retrospective analysis was conducted to examine between inter year comparisons of student exam performance and laboratory assessments were conducted. A one way ANOVA was conducted to compare student performance across the three year period. A Tukey's s-b post hoc analysis found significant improvements for exam scores and performance based lab assessments between the 2016 and the control year 2014. The study demonstrates the efficacy of course wide substitution of didactic lecture for student-mediated interaction with digital video lectures outside of scheduled class. Implications of the study include the progressive refinement of the structure activities that replace didactic lecture using the flipped class intervention

Pierce and Fox's (2012) flipped class project employed a process oriented guided interactive lecture (POGIL) and recorded lectures to actively engage students with complex patient cases that required students to diagnose, stage patient's chronic kidney disease CKD as well as develop a therapeutic response to a variety of patient contexts. Success in the class activity was predicated on the successful appropriation and integration of the factual content from the recorded lectures for staging CKD, clinical practice guidelines, and pharmacotherapeutic options for treatment. The total final exam scores showed no significant differences from year to year, while the 5.7% improvement in subscale exam content relating to the flipped class content (16 questions) was significant. A similar approach was recently employed (Pierce & Munson, 2015) to improve exam performance on pedigree analysis, genetic inheritance, and the assignment of presumptive genotypes to individuals in a Pharmagenomics course. Transitioning the lecture content to digital video allowed classroom practice to focus on algorithmic processes associated with single and multiple gene inheritance and pedigree analysis in class. There were no significant differences between overall examination scores of the flipped classroom and those of previous approaches; however, similar to findings of the previous study, a subscale item-by-item analysis of the content reflected a significant change in performance on questions addressed in the flipped classroom exercise. Mortensen & Nicholson's (2015) multiyear group comparison in equine studies found that students in the flipped format scored higher on all three exams ( $P < 0.05$ ), with both formats taught by the same instructor. Active learning approaches in the flipped class included individual activities, paired activities,

The statistical design of this study was a retrospective between group comparison of exam performance and performance based lab assessments for years when traditional didactic instruction took place (2014) and when the flipped class instructional model intervention occurred (2015, 2016). The comparative research groups consisted of first year Physician Assistant and Physical Therapy students. A design experiment was selected as the guiding methodology of this study. In design experiments, researchers study interventions in practice, with the dual goal of progressively refining the design of the intervention itself and the theories of learning and teaching that inform the design (Barab, 2004; Brown, 1992; Collins, 1992; Kelly, 2003; Sandoval & Bell, 2004, Collins & Bielaczyc, 2004). A one way ANOVA was conducted to compare student performance across the three year period. A Tukey's s-b post hoc analysis was conducted to assess performance differences between groups.

A non-significant (1.4%) decrease in combined exam scores occurred in 2015, the first year of the flipped class intervention. A one way analysis of variance (ANOVA) found significant differences between in the combined exam scores in 2016 and the two previous years  $F(2,1219) = 13.7$ ,  $p = 0.000$ . A Tukey's s-b post hoc analysis found significant improvements between the 2016 exam scores and the previous two years' scores. Performance based lab assessment mean scores increased in each year of the study. A one way analysis of variance (ANOVA) found significant differences between in the combined lab assessment scores  $F(2,549) = 5.6$ ,  $p = 0.004$ . A Tukey's s-b post hoc analysis found significant improvements between the 2016 and the control year 2014.

This study highlights the potential of progressive refinement in instructional delivery using the FCM to improve student outcomes. Essential components of the FCM in this study included time-shifting instruction outside of scheduled class via digital video as well as a reconsideration of the most effective uses of face-to-face time. Student control over their interaction, including time, place, and frequency, with recorded lectures is a hallmark of most

FCM studies. This additional control by students over their interaction with the content did not significantly improve outcomes in 2015, the first year of the FMS intervention. A non-significant decrease (1.4%) in exam scores and a non-significant increase 2.3% in practicum lab assessment scores were found in the first year of the FCM. The researchers feel the reconsideration of optimizing the face-to-face time in the second year of this study is the primary mitigating factor in improving student performance. Both indices of student performance, practicum lab scores and exam scores, significantly improved in this study; however, the gains appeared in 2016, the second year of the FMC intervention.

## **Flying the nest: Investigating factors affecting the development of self-regulated learning during the transition to Higher Education**

Stephen Rutherford, Cardiff University

The transition from secondary to Higher Education (HE) is challenging. One of the major and significant steps required during this transition is to develop effective self-regulated learning (SRL) strategies, so as to study affectively outside of class. In order to support students effectively during the transition to HE, it is important to understand how students develop their SRL skills, and to identify the factors that support or inhibit this development. This project adopted a qualitative analytical approach, using a series of successive interviews with 24 undergraduate students, over the course of their first year at university. Grounded Theory and Situational Analysis were used to identify core factors that drive the development of SRL, and to identify any social drivers that impact upon students. Findings from the analysis suggests that students are already highly effective at SRL, and have developed strategies through trial and error over the course of their pre-university education. However, first-year students initially lacked an understanding of 'the rules of the game' which underpin the community of practice of HE. An appreciation of these conventions developed in participants, throughout the year, which in turn caused students to revise and adapt their established SRL approaches to better suit their new environment. Fundamental to this change was social interactions with peers; most significantly cohabitant peers from halls of residence, with discipline-specific peers from the degree course being of less importance. Also development of learner identities had significant impact on development of SRL. These findings suggest that students are already capable self-regulated learners when they come to university, and that this self-regulated capability needs to be refined rather than created in order to transition effectively to HE. A conceptual framework around analysis, evaluation, and critical thinking may therefore be more important to embed, rather than study-skills support for SRL.

One of the key aims of Higher Education (HE) is to develop independent, critical and inquiring minds who are capable of being self-regulated learners (Boyer, Edmondson, Artis, & Fleming, 2013; Nicol & McFarlane-Dick, 2006). Certainly a high proportion of work at University is expected to be self-directed, with even the most-didactic degree courses only averaging contact times of 20-40% of the working week. Development as a self-regulated learner is a progressive one, which occurs over an extended period, as the learner moves from a 'child-focused' model of learning (pedagogy) which is highly-driven by the teacher, to an 'adult-focused' (andragogy) model, which is more self-directed by the student (Knowles, 1983). Student-centred learning is seen as important for the development of agency and independence in learning (Boyer et al., 2013; O'Shea, 2003) as well as metacognitive and critical skills, and skills of synthesis of information (Bannert, Sonnenberg, Mengelkamp, & Pieger, 2015). The capability of undertaking independent self-regulated learning (SRL) is therefore seen as a hallmark of educational maturity (Daily and Landis, 2014) or educational experience. The ability to carry out SRL outside of class is therefore a fundamental skill. In particular SRL is important for supporting the transition to HE. Students often struggle during this transition (Mendaglio, 2013), and evidence suggests that the psychology and mind-set of the student in general is a key factor (MacNamara & Collins, 2010). The ability to self-regulate is a fundamental factor in the smooth transition to University, but in order to support the development of this skill, we first need to understand the extent to which students are self-regulated learners, and the ways in which they develop further SRL skills as they adapt to the HE environment. This research aims to identify the extent to which students are already self-regulated learners, and/or the extent to which they develop this skill during the first year of university.

In order to evaluate the perceptions of students, and to highlight their nuanced experiences, a qualitative approach was chosen. Data were generated through a series of semi-structured interviews, using broad, open questions that encouraged the participants to give rich, extensive responses. 24 Year 1 students were recruited during the first two weeks of their degree. To provide contrast between prevalent teaching approaches (science subjects typically being more-didactic, humanities using more discursive and self-directed learning activities), participants were drawn from a science course (chemistry) or humanities courses (English Literature or History). Participants were interviewed on three occasions during the year – at the start of the academic year, at the start of the second semester, and after the end-of-year examinations. Interviews were typically between 35 and 70 minutes in length, were audio-recorded, and transcribed for analysis. Grounded Theory was adopted as the analytical paradigm (Glaser & Strauss, 1967); specifically a constructivist grounded theory methodology (Charmaz, 2014), whereby each round of interviews was analysed and informed the question set(s) for subsequent interviews. Each interview was coded using line-by-line

coding, followed by open coding, to develop robust categories. Categories were then further analysed through axial coding of the data. The data were coded by a single individual, however, in order to enhance internal validity, and to move towards saturation of the data, coding was repeated three times for each stage of analysis. It became evident, after the first round of coding, that social interactions were of fundamental importance to the participants' development, and so Situational Analysis (Clarke, 2005) was adopted as an additional layer of analysis, using situational maps, social worlds/arenas maps and positional maps to identify fundamental social impacts, and the common attitudinal positions taken by various participants. Ethical approval for the project was obtained prior to commencement. All participants consented to participation and audio recording of the interviews.

The first round of interviews included 24 participants, the second round 20, and the final round 18. Each cycle of analysis produced several hundred codes from line-by-line and open coding, which were condensed into 12-14 categories for each cycle of interviews for the axial coding. Analysis of the first round of interviews highlighted that students were already highly adept at SRL, with most having developed robust SRL strategies through trial and error during their pre-university education. These strategies were focused on more-surface-learning approaches appropriate to the secondary education environment, however, but did develop significantly over the course of the year. The following factors were identified as having most impact on the students' ongoing development of SRL: (a) Social interaction: The key social impact on students' SRL development were their social peers, especially cohabitants in their halls of residence. Cohabitant impact was more significant than impact of course-based peers. (b) Involvement of others in learning: Participants would commonly shun collaborative or group study activities, but did involve others in reinforcing or verifying their understanding – most commonly by attempting to teach the other person. (c) Identity: It was common for participants to identify themselves with a 'learning style' (e.g. visual learner, auditory learner). Identity seemed to be fundamental to guiding the participant towards either a fixed- or growth-mindset (Dweck, 2006), and participants typically identified themselves by what they were not, rather than what they were. (d) Understanding the 'rules of the game': participants were universally unsure of the nature of the academic expectations of their tutors, and only gained an appreciation of this towards the end of their course. Towards the end of the year, all participants were confident of their expected academic requirements. Finally, (e) Recognition of the learning journey: All participants perceived themselves as being 'works in progress', and even negative experiences they had endured were fundamental to their development.

These results highlight that participants were competent self-regulated learners when they began university, which is at odds to many common approaches undertaken by academics to guide new students in 'how to study' at university. However, this capability with SRL was limited by their pre-university experiences, in an educational environment which emphasised teaching-to-the-test, and surface learning. Learning how to study seems to be of less importance than framing the 'rules of the game' of the community of practice of HE, which students found to be arcane at first, and difficult to conceptualise. Having adapted well to the expectations of high school study, they were aware that university study was to be different, but were unsure how or why. This resulted in considerable frustration during the course of the year. However, when asked in retrospect, such frustration was seen by participants as an important learning experience, both in development of resilience, the development of strategies, and forging a robust identity. Key to developing these understandings are the social worlds impacting on the participants – with social peers having more constructive impact on their academic development than subject-specific peers on their course. These findings suggest that learning the 'rules of the game' should be a priority for academic support during the transition process, ideally by setting a series of learning experiences or challenges from which clear insights can be gained. Therefore, transition to university would be eased by effective support in understanding academic concepts of evaluation, analysis, synthesis; supporting students in developing their sense of identity, and supporting social interaction between peers on individual degree courses, to complement other social interactions the students develop in parallel to their course. Once the expectations of the community of practice are made explicit, students will quickly adapt their own personalised SRL activities to match the new requirements of their studies.

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## **Nursing programs in Appalachia: The Impact of Technology on Traditional and Non-Traditional Students Experiences**

Kelly Darney, Youngstown State University; Karen Larwin, Youngstown State University

This current investigation examines the effects of technology on the success of traditional and non-traditional, post-secondary students in nursing programs in an Appalachian vocational setting. The survey was used to measure technology self-efficacy, perceptions about the impact of technology on the educational experience, and preparation for future employment. The survey was completed by 205 participants, both traditional and non-traditional in age for comparison. Findings from this study indicate that non-traditional students face more barriers to learning with the use of technology than the traditional set of students. With an ever-changing economy and job market, non-traditional students will continue to be a group that faces different barriers and challenges than others in different age brackets.

In areas, like Appalachia, with a great number of the population living in poverty, it is likely that one of the primary factors affecting educational attainment is the home culture and family dynamic. People living in poverty are typically involved in day to day survival, and look less to the problems and solutions for tomorrow (Payne, DeVol, & Smith, 2001). Economically, students in Appalachia are unable to keep up with rising costs of attending school, tuition, books, and transportation. It is difficult, or impossible, to seek financial aid or scholarships without assistance from family, as most are income-based. With traditional family attitudes in Appalachia, this can prove to be extremely problematic. Parents fear losing children to the world and higher goals, which is more than the family dynamic can handle. Who is going to take care of the parents, as they get older, is always the child's responsibility, so parents are reluctant to let their children go far (Addington, 2011). Parents are often not supportive as they did not obtain as much education as the children may be able to, thus causing a lack of motivation to assist. These barriers are further complicated when the student is of a non-traditional age of entering the post-secondary educational setting. Challenges of Non-Traditional Students in Post-Secondary Career Technical Training Non-traditional students have little to no post-secondary experience forget what it is like to be in school again. Study skills, time management, and test-taking skills are likely forgotten. The ability to adapt to a teacher's style, and study for tests, has been studied with non-traditional students in mind (Bear, 2012; Forbus et al., 2010, & Ott, 2011). Other surveys and research experiments were completed looking at the effectiveness of teacher modeling and inst

Participant: All students enrolled in post-secondary, medical based programs For the purposes of the investigation, non-traditional students are defined as those who were 35 years of age or older. Students will report basic demographic information including gender, race, age, and number of children, marital status, and county of residence. All participants will remain anonymous to the researcher. No identifying data will be collected nor will specific schools be identified. Instrumentation: The researcher will be using a 31-question survey developed by the administration of the to obtain information from non-traditional students with regards to their experiences with using technology for educational purposes. The survey was designed to be simple and short with an estimated time of five minutes for the participant to complete. This survey was originally developed for program evaluation purposes at the local career technical center. While there were open ended boxes for responses of "other", the survey was designed for participants to quickly be able to click radio boxes as needed and move on to the next question. No participants have reported any user issues in the past. A copy of the survey questions will be provided. Procedures: The survey was administered along with spring course evaluations. The response rate was approximately 95%.

A total of 205 student nurses responded to the survey. Results indicate that there is a significant difference in how participants felt about using technology as a required part of their coursework. Factorial ANOVA was used for analyzing the data across the two groups (traditional vs. non-traditional). Non-traditional students overwhelmingly report that the use of technology made coursework more difficult. Additionally, non-traditional respondents also indicate that the required use of technology also had a negative impact on their grades. While both groups reported using technology about the same amount of time each day, non-traditional students reported more time spent on cell phones than traditional students. Non-traditional students report a lower technology self-efficacy than traditional students. Many more results will be provided including the distribution of responses to each of the thirty-one survey questions.

With the increase of technology-based tasks in the nursing workplace, the instruction of nursing students in the use of as much technology as possible is imperative (Swenty & Titzer, 2014). To be assured that Appalachian students

are being prepared for the workplace adequately, schools must realize the significance of the diversity of the two groups of students studied in this research study: the traditional and the non-traditional. Findings from this study indicate that non-traditional students face perceived barriers to learning with the use of technology than the traditional set of students do. With an ever changing economy and job market, non-traditional students will continue to be a group that faces different barriers and challenges than others in different age brackets. Addressing the differences and providing additional remediation and support may provide schools with better student retention numbers and consumer satisfaction. A list of specific recommendations for the post-secondary institution and policy makers will be provided for each of the findings of this investigation.

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## **Performance differences between face-to-face and online students**

Seife Dendir, Radford University

The purpose of this research is to analyze differences in student performance in a course offered face-to-face (F2F) and online. The data for the study come from six sections of principles of microeconomics taught between Spring 2013 and Fall 2014 at a comprehensive public university. Two of the sections were F2F and the rest were asynchronous online. Apart from the mode of delivery, the characteristics of the course stayed nearly identical between the two types of sections and over time. The analysis in the paper employs varied measures of performance, including exam and assignment scores, and accounts for several demographic, academic background and student experience variables obtained from institutional and survey sources. The paper adopts analysis of variance and multivariate regression models, including an endogenous binary treatment framework that addresses potential bias arising from self-selection into learning mode. Three main results emerge from the analysis: (1) Simple Analysis of variance (ANOVA) and pooled regression methods indicate that online students outperform F2F students; (2) Once self-selection into learning mode is addressed, online students no more outperform their F2F counterparts; and (3) According to assessments that gauge higher levels of learning (e.g. problem solving in homework assignments), there is suggestive evidence that online students underperform F2F students.

When it comes to learning outcomes, the consensus in several disciplines seems to be that there is no significant difference between the face-to-face and online modes. This is known in the literature as the ‘no significant difference’ phenomenon (see Russell, 2001 and the accompanying website, [www.nosignificantdifference.org](http://www.nosignificantdifference.org)). A report commissioned by the U.S. Department of Education had concluded similarly based on a meta-analysis of numerous studies (Means et al., 2010). Economists disagree. Admittedly, the number of studies in economics examining differences in learning between the two modes is far fewer. This is because economics, as a discipline, was generally slower to embrace alternate forms of teaching and delivery (Watts and Becker, 2008; Watts and Schaur, 2011). But the balance of the existing studies has yielded results that mainly contradict the no significant difference phenomenon – according to most, subpar learning takes place in the online mode (Brown and Liedholm, 2002; Coates et al, 2004; Anstine and Skidmore, 2005; Gratton-Lavoie and Stanley, 2009; Couch et al. 2014; Joyce et al., 2015). These studies point out that the bulk of the evidence supporting the no significant difference assertion suffers from serious methodological issues. One major flaw is the attribution problem. Many studies comparing learning outcomes in the two modes simply compare average performance, failing to account for several important control variables. Others suffer from problems in study design. A careful analysis should be based on a comparison of learning in two otherwise identical courses that differ only in delivery mode. Rarely is this the case, however, and online and traditional courses often differ in other dimensions as well. Finally, perhaps the most intransigent of the challenges, is sample selection: the choice of learning mode by students is non-random, often driven by unobservable student attributes. Because the researcher is often unable to control for such attributes, the estimate of learning difference is likely biased.

The objective of this study is to examine differences in performance between face-to-face and online students in economics, while explicitly addressing the various challenges listed above. The study will be based on six sections of principles of microeconomics offered in the two formats at Radford University, a comprehensive public institution, between Spring 2013 and Fall 2014. The courses were identical in almost every aspect except delivery mode. They had the same instructor, textbook, ancillary materials, course outline and schedule. The assessments used were also largely similar in type and content. The fact that the two courses were identical except in delivery mode minimizes the chances that the research suffers from the aforementioned study design flaws. The study employs analysis of variance (ANOVA) and multivariate regression techniques to analyze performance differentials between the two groups of students. In doing so, it will control for several variables that can potentially confound the effect of learning mode on performance. These include student demographics, background and academic aptitude, prior pedagogical experience, and concurrent commitments and time-use. The inclusion of such a wide array of control variables minimizes the potential for an attribution problem. Finally, to mitigate selection bias, the paper adopts instrumental variable estimation in the context of an endogenous binary treatment model. Selection bias arises when unobservable characteristics of a student impact her section choice as well as course performance. Instrumental variable estimation attempts to eliminate or “tease out” such dependence through a two-stage process. In the first stage, a variable or group of variables, known as “instruments”, are used to model and predict choice of

learning mode. The predicted section choice – technically rid of the unobservable factors causing dependence – is then entered in a second-stage performance equation to obtain an unbiased estimate of the impact of learning mode.

The analysis is based on performance on three exams and several homework assignments of 200 students that were enrolled in a principles of microeconomics course in either a F2F or online format. In the final sample, 36 percent of the students/observations came from F2F sections. Broadly, the various analyses yielded three main results. First, the results from ANOVA and baseline ordinary least squares (OLS) regressions show that the online mode is associated with significantly higher performance on exams. Mean score comparisons and regressions controlling for a large set of student characteristics – including gender, class/year, course load, previous exposure to economics, work hours, GPA – indicate that online students on average score 8 to 9 percentage points higher than F2F ones. Second, when accounting for self-selection through a two-stage endogenous binary treatment model, the positive performance differential of online students largely vanishes. The analysis employed three instruments to predict section choice – a student’s commuting distance to campus, previous experience with online course/s, and an indicator for majoring in business. Appropriate statistical tests confirm that these variables are highly predictive of section choice but do not impact performance (that is, they are valid instruments). Third, when performance is measured by homework assignment scores, results from both the pooled and endogenous regression models imply that online students may in fact underperform F2F students. This set of results is interesting because the homework assignments, given that they comprised mainly of analytical and problem-solving questions, required a higher level of learning to successfully complete. In contrast, exam questions were more general, although they were timed and perhaps completed in a more pressurized setting.

Two main conclusions can be derived from the results of the analyses in this paper. First, the results underscore that when it comes to comparing performance of online and F2F students, the potential for self-selection to bias the analysis is real and significant. Previous studies in the economics pedagogy literature have pointed out selection bias as a possible culprit for the ‘no significant difference’ phenomenon, which the results of this paper confirm. Second, the contrast in results when performance is measured by exam versus homework assignment scores suggests that how we assess ‘learning’ (or ‘learning differential’) matters. This perhaps points to a more fundamental issue, as pointed out by Wunder et al. (2013), who emphasized the distinction between learning outcomes and learning. Learning outcomes are typically measurable. Learning, however, by definition has a large intangible component that is difficult to measure. After surveying economics faculty who have taught in both the online and F2F modes, Wunder et al (2013) reported that faculty perceive a learning advantage in face-to-face instruction but not in learning outcomes. But because analysis of performance differences routinely relies on learning outcome measures only, the value of onsite learning – presumably enhanced by face-to-face interaction – could be underestimated. The fact that F2F students in our sample were doing better on the more inquisitive homework assignments means face-to-face instruction still holds the advantage when it comes to learning.

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## Relationships Between Students' Motivation and Engagement: Testing the MUSIC Model of Motivation Theory

Brett Jones, Virginia Tech

Many motivation scientists agree that motivation variables can be used to explain students' engagement in courses. However, it can be confusing to instructors to understand which motivation variables are most important and what they can do to directly affect these variables to engage students in their courses. The MUSIC Model of Motivation specifies the process through which students' motivation-related beliefs lead to engagement through their perceptions of empowerment, usefulness, success, interest, and caring. Although many studies over the past few decades have shown that these five perceptions are important to increasing students' engagement, few studies have included all of these perceptions in one study. The purpose of this study was to investigate these relationships directly by examining the correlations between students' motivation-related perceptions and their engagement. Participants included 533 students from five different college courses. Students completed a questionnaire during the course with items related to their motivation-related beliefs, their behavioral and cognitive engagement, and their course and instructor ratings. The findings indicate that college students' perceptions of the MUSIC model components were significantly related to their engagement in the course, thus providing empirical evidence for the relationships proposed in the MUSIC Model of Motivation theory. In addition, instructor and course ratings were significantly correlated with almost all of the MUSIC model components and engagement. From a practical perspective, these findings are important for instructors because students' MUSIC model perceptions can be linked directly to categories of motivational strategies that can be used by instructors as they design instruction.

Jones (2009, 2015) developed the MUSIC® Model of Motivation to synthesize and summarize the main principles related to current motivation research and theory. The MUSIC model consists of five components that have been shown to be related to student engagement in academic settings: eMpowerment, Usefulness, Success, Interest, and Caring (MUSIC is an acronym that is used to help instructors remember these five components). The five key principles of the model are that the instructor needs to ensure that students: (1) feel empowered by having the ability to make decisions, (2) understand why what they are learning is useful for their goals, (3) believe that they can succeed if they put forth the effort required, (4) are interested in the content and instructional activities, and (5) believe that the instructor and others in the learning environment care about their learning and about them as a person (Jones, 2009, 2015). The MUSIC model theory specifies that students are more engaged in their classes when they perceive a higher level of empowerment, usefulness, success, interest, and caring. Although many researchers have documented these relationships over many years, few studies have included all of the five MUSIC model components in one study when examining the relationships between motivation-related perceptions and engagement. The purpose of this study is to address this gap in the literature by examining the relationships between all five of the MUSIC model components and students' engagement and course and instructor ratings.

Participants included 533 students from five different college courses, including biochemistry, drug education, educational psychology, mathematics, and neuroscience. Students in all of the courses completed a questionnaire that included items related to their perceptions of the five MUSIC model components, their cognitive and behavioral engagement, their overall perceptions of the instructor and course, and their demographic information. Response rates from each class ranged from 91.7% to 97.0%. Students' perceptions of the five MUSIC model components were measured using the MUSIC Model of Academic Motivation Inventory (MUSIC Inventory; Jones, 2016). Students' behavioral engagement in the biochemistry course was measured with a 5-item Working to Potential scale that measured the extent to which students put forth their maximum effort in the course. Behavioral engagement in the educational psychology course was measured using the 5-item Effort/Importance scale that is part of the Intrinsic Motivation Inventory (Plant & Ryan, 1985). Behavioral engagement in the mathematics and neuroscience courses was measured using three of the five items from the Behavioral Engagement scale from Skinner, Kindermann, and Furrer's (2009) Engagement vs. Disaffection with Learning measure. Cognitive engagement in the biochemistry and drug education courses was measured using the 8-item Self-Regulated Strategy Use scale (Shell & Husman, 2008). Cognitive engagement was measured in the educational psychology, mathematics, and neuroscience courses using the same 3-item Metacognitive Strategies scale used by Reeve and Lee (2014). Similar to Jones (2010), one item was used to assess students' overall perceptions of their instructor and one item was used to assess their overall perceptions of their course.

Correlation coefficients between the MUSIC model components and cognitive engagement ranged from -.09 to .77. Correlation coefficients between the MUSIC model components and behavioral engagement ranged from -.01 to .72. The correlation coefficients between the MUSIC model components and the overall instructor ratings (ranging from 0.01 to 0.87) and overall course ratings (ranging from 0.11 to 0.86) were positive and mostly statistically significant. Correlations between all of the study variables and their effect sizes will be presented.

College students' perceptions of the MUSIC model components were significantly related to their engagement in the courses. Of the 25 correlations between the MUSIC model components and cognitive engagement, two correlations were insignificant, seven had a small effect size, seven had a medium effect size, and nine had a large effect size using Cohen's (1988) criteria. Of the 20 correlations between the MUSIC model components and behavioral engagement, four correlations were insignificant, six had a small effect size, six had a medium effect size, and four had a large effect size using Cohen's (1988) criteria. These findings provide strong evidence that students' perceptions of empowerment, usefulness, success, interest, and caring are correlated with their cognitive and behavioral engagement, thus providing empirical evidence for the MUSIC model theory. Of the 20 correlations between the MUSIC model components and instructor rating, one correlation was insignificant, three had a small effect size, six had a medium effect size, and 10 had a large effect size using Cohen's (1988) criteria. Of the 20 correlations between the MUSIC model components and course rating, no correlations were insignificant, five had a small effect size, three had a medium effect size, and 12 had a large effect size using Cohen's (1988) criteria. These findings suggest that students' perceptions of empowerment, usefulness, success, interest, and caring are correlated with their instructor and course ratings, similar to the findings of prior studies (Griffin, 2016; Jones, 2010). Taken together, these findings indicate that instructors may be able to increase students' engagement by increasing their perceptions of the MUSIC model components.

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### **Student Perceptions of Their Native or Non-Native Instructor of Foreign Language**

Brian Hunter, University of Cincinnati - Blue Ash College; Sheri Barksdale, University of Cincinnati - Blue Ash College; Sheri Barksdale, University of Cincinnati - Blue Ash College

What do students think about their foreign language instructor? Students of foreign language may have an instructor who is a native speaker or one who is a non-native speaker. They also may have had both in years past. This session will report on the findings of the Phase 2 survey given to college students that uncovered their perceptions and opinions about their foreign language instructor.

Hertel and Suderman (2009), Tang (1997), Mahboob (2004), Callahan (2006) and Filho (2002) agree that native speaker teachers are knowledgeable, better able to teach, and possess greater learning potential than non-native speakers along the areas of vocabulary, grammar, pronunciation, and culture, and speaking, listening and reading. For example, Hertel and Suderman (2009) found that students' perceived native speakers were most knowledgeable and would learn more in terms of vocabulary, pronunciation and culture than grammar. Students from Callahan's (2006) questionnaire wrote, "Non-native, but fluent [double underlined] speaker should make a good beginner teacher to language. In an advanced level course, a native speaker may be more preferable. (p. 38). In favor of the non-native speaker teacher, Tang (1997) states that the non-native speaker teacher is associated with accuracy rather than fluency. Reves and Medgyes (1994) also considered the L1 be an "effective tool for the clarification of structures" (p. 362) indicating that non-native speaker teachers were more successful in teach grammar. Üstünlüglü (2007), Tang (1997), Ling and Braine (2007) report that in regards to the management, communication and overall effectiveness in the classroom, the non- native speaker teacher is favored by the student. Üstünlüglü (2007) reports that the non- native speaker teacher "stimulates interest at the start of the lesson, relates the previous lesson's work with the current lesson, adjusts the content of the lesson to the level of the students, uses tools and materials in a timely and appropriate manner, stages the lesson coherently, implements effective learning methods, gives sufficient prompts and cure, corrects wrong and incorrect answers effectively, check students achievement of the lesson aims, and provides activities to consolidate learning more than a native speaker teacher does" (pp. 70-71). Üstünlüglü (2007) additionally reports, from the student perspective, a non-native teacher speaker "is more punctual and prompt at arriving in the classroom, better prepared, and better able to maintain order and discipline in the classroom than a native speaker teacher" (p. 70). Üstünlüglü (2007), Reves and Medgyes (1994), Tang (2007), Ling and Braine (2007), Mahboob (2004) and Callahan (2006) report that the non-native speaker teacher comes to class better prepared, and are more empathetic to their students due to their own language acquisition. In Üstünlüglü (2007) findings, the students reported that the non- native teacher speaker knew his/her topic better than a native speaker teacher. Reves and Medgyes (1994) report that the non-native teacher speaker has the "ability to estimate the learners' potential, read their minds and predict their difficulties" (p. 361).

The survey data was collected using a Likert scales in all four categories of the survey. This data was analyzed quantitatively and qualitatively. •11 courses –3 native language instructors –3 non-native language instructors  
•Questionnaire –21 questions, using Likert Scale –Native and Non-Native comparison questionnaire

The in-class teaching role is where we find the most differences between the perceptions and opinions of the students but the communication skills play an active role in the teaching role. –Students' interest has to be gained at the start of the lesson. If not, the lesson is not enjoyable for the students. –An effective teaching method has to be used. –Instructor has to be enthusiastic about topic.

Does the student's previous knowledge change the perception and opinion a student has on their instructor? Does a student enroll in a course just by looking at the last name? Does not using a student's name when giving praise change their perception and opinion? How does a native or non-native instructor acquire the teaching qualities of the other? The course is more than teaching a language but also how the class is ran and treatment of students?

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## **The Book Project: Engaging Undergraduate Students through Collaborative Research and Publication**

Mark Barrow, Virginia Tech

This presentation explores an initiative to increase student engagement by implementing “The Book Project” in senior History seminars. This student-centered approach to teaching and learning seeks to expose undergraduates to the actual experience of professional historians by having them work collaboratively to research, write, and publish an edited volume on a specific topic during a given semester. The experience of professors adopting this approach and the results of several surveys of students enrolled in their courses have led to two significant findings. First, creating a carefully crafted, stepwise, collaborative process that produces an edited volume increases student confidence in the acquisition of important research and presentation skills. Second, the creation of a durable product (a book that is available on the web and deposited in the library) motivates students to do their best work, while increasing their engagement and learning. This novel approach, which has been adopted in many History senior seminars at Virginia Tech to improve the experience of students, is widely applicable to other disciplines, especially in the humanities and social sciences.

In 1998, the Boyer Commission on Educating Undergraduates in the Research University recommended that universities make “research-based learning the standard” and urged them renew emphasis on a goal articulated decades earlier by John Dewey, the pragmatist and founder of progressive education. Learning, according to Dewey and the Boyer Commission, should be based on “discovery guided by mentoring rather than on the transmission of information” (Boyer Commission, 1998). Since the Boyer Report urged educators to incorporate research experiences in undergraduate education, considerable attention has been devoted to demonstrating the value of such experiences and designing appropriate curricular practices (Katkin, 2003). Yet, in general, research universities have lagged behind non-research institutions and liberal arts colleges in providing undergraduate research opportunities and much of the pioneering work at research universities has taken place in the sciences rather than the humanities (Hu, Kuh, & Gayles, 2007). Undergraduate research offers what David Lopatto (2010) has aptly called a “high-impact student experience,” one that not only cultivates the acquisition of knowledge, skills, and self-confidence but can also motivate students to higher levels of engagement with the subject matter. However, as John C. Bean (2011) stresses, it is important to provide undergraduate researchers with the structure and guidance, including appropriate sequencing of assignments, they need to successfully complete a complex research and writing project. The Book Project aims to provide that structure and to extend the many benefits of undergraduate research to large numbers of students (Stephens, Jones, & Barrow, 2011; Jones, Barrow, Stephens, & O’Hara, 2012).

Through a unique course design for the capstone senior seminar, history majors at Virginia Tech have become published authors in recent years. To date more than two dozen classes of undergraduates have collaborated to create edited volumes of original historical essays that are published at the end of the semester using an affordable online printing service. Copies of the volume are sold on the web and deposited in the Virginia Tech Library, where they are accessible for future researchers to consult. Inspired by early initial experiments that two of our colleagues had undertaken, Rob Stephens and I collaborated to create the first formal iteration of the Book Project in 2008. Over two semesters, we worked together closely to create a task timeline, a careful sequenced set of assignments for each stage of the researching and writing process, and a series of in-class activities that cultivated the knowledge and skills students needed to successfully complete their individual chapter of the class book. For nearly a decade now we have continued to refine the process, incorporating with what we have learned from previous iterations and experimenting with ways to make it more effective. Qualitative and quantitative assessments show that this teaching innovation, with its carefully sequenced structure for research and writing that culminates in a publicly available publication, greatly enhances student engagement with the course, even as it demystifies the process of research.

Does working collaboratively to research and write a class book actually improve student engagement and acquisition of skills? To find the answer, we designed two online survey instruments—one completed at the beginning and again at the end of the course to measure self-reported improvement and a second survey to gauge the impact of the project on self-reported effort and satisfaction—and administered to students in five sections of the senior seminar that were pursuing the Book Project (n=84). The first survey instrument consisted of 60 mostly quantitative questions asking students about their general familiarity with the kinds of sources historians rely on, their experience using key historical tools and databases, and their sense of their own skill levels in researching and writing. Students completed this survey during the first week of class and again at the end of the semester. The second survey, which students also completed in the final week of classes, was more qualitative, focusing on the

experience of the class and the ways in which the Book Project altered students' perceptions of themselves and the course. In the first survey, students reported an average increase in their knowledge and skills in 59 of 60 of the surveyed categories, with averages gains in self-reported skills and knowledge calculated from the 1-to-5 scale ranging from 0.015 (citing sources) to 2.528 (familiarity with WorldCat database). In the second survey, the vast majority of students expressing satisfaction with their work. When asked about the effect of the Book Project on their motivation, students claimed that the prospect of publishing the results of their research encouraged them to take the work more seriously, made them want to do their best work, and pushed them to work harder than they would have otherwise.

Student research papers normally experience a remarkably short life span. Students work on them, more or less intensely, at various points during the term, before turning in a final version sometime near the end. Professors not only offer feedback along the way, but also provide a grade and copious written comments on the final version of the paper. But far too often, all that hard work—on the part of both students and faculty—quickly falls by the wayside once the semester is over. Students soon lose or discard their graded final papers or they languish in our offices, sometimes for years after the term has ended. We hoped the very permanence of a class book would prompt students to take more pride in their work for the course by viewing it as having a life beyond the fifteen weeks of the semester. Our subjective experience with this project and survey data both show that this approach to learning engages students in the research and writing process while cultivating important skills. This novel approach to improving the experience for history majors in their senior research seminar is widely applicable to other disciplines, especially in the humanities and social sciences, where student research and writing is a regular part of undergraduate education.

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## **The Impacts of Construction Management Simulations' Features on Undergraduate Students' Perceptions**

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This paper succinctly reports on the results of two construction management simulations (VICE and PERFECT) which were designed, developed, and tested with construction management undergraduate students. The main objective of these two simulations was to convert the traditional lecture based content into the interactive project-based elements using simulation. Therefore, a pilot project was defined for each application and corresponding scenarios were designed for playing simulation in the role of a project manager. Both simulations provided construction management contents through educational and interactive modules. The structure and duration of content displayed for both applications were similar, however, each one had different formatting, audio, and graphical features. A total of 159 students participated in the tests and played simulations. A quantitative research method was used to analyze the data gathered in different stages of simulations. This paper presents how students comprehended each simulation's elements and the impact of these features on their perceptions. The emphasized points can be considered in construction simulations' design strategies for future applications.

Simulation applications are getting more attention in higher education as supplementary tools. They are increasingly being incorporated in engineering education due to their capabilities. High-risk, time-consuming, and cost-bearing subjects are ideal candidates for using simulation and educational games (Goedert, et al., 2013; 2016). Among engineering programs, it seems construction has not taken full advantage of simulation in its curricula (Rokooei, et al., 2015). Simulation applications' features can greatly impact students' acceptance and increase their incentive to interact with instructors. Shabalina et al. (2010) reviewed the literature of mobile educational games and concluded that unification in gameplay and game mechanics by common characters and common environments makes educational games very attractive. Huynh-Kim-Bang (2011) analyzed twenty serious games and formulated useful practices to categorize design patterns. They stated that in Fun Reward pattern, offering rewards based on different sources of fun motivates the players to progress in the game and can be a core concept for an educational game. Beckwith (2016) addressed evidence that students who become interested and engaged through the use of visualization learn better and retain what they learn longer. Stenger (2013) reported on the outcome of using educational video games and stated that well-designed games can motivate students to learn less popular subjects. The way that the subject content is simulated can provoke different perceptions about the educational games.

The main goal of the research project was to investigate the project-based learning paradigm in construction programs. To achieve this goal, different modules were defined to cover the wide area of construction contents. The first application (VICE) was designed to present general contents of construction management curriculum via six modules. A relevant portion of main subject contents that are typically presented in traditional lecture-based courses was designed to be embedded in each module so that the whole modules contain all subject contents. Because this application was aimed to cover various construction concepts, educational sections provided broad but shallow contents. The second application (PERFECT) was devoted to construction scheduling subject and therefore provided more specialized and deeper contents. Both applications had a sample project and students were asked to complete that project along the simulation. Videos, animations, audios, pictures, and interactive contents were incorporated in applications to show the consequences of decisions that students, as project managers, make while playing the simulation. Both applications, similarly, consisted of three sections. Pre-Quiz, main simulation, and Post-Survey. The Pre-Quiz section established a baseline for students' knowledge regarding the contents provided in the main simulation. The main simulation section covered the educational contents through interactive and educational contents. After finishing the main simulation, students were directed to the Post-Survey section in which they self-evaluated their performance and expressed their opinions about the application. Data retrieved from Pre-Quiz and main simulation sections were compared to show the actual performance. The Post-Survey section was used to investigate the effectiveness of the application through a retrospective self-evaluation survey.

Both VICE and PERFECT applications were used in conjunction with course activities in an undergraduate level construction program. Ninety-nine students participated in the first application test and sixty students played the second one. VICE application utilized general construction management concepts. Logical scenarios were animated resulting in numerous video and audio features that responded to player decisions. PERFECT, on the other hand, provided more conceptual content with more detailed information. Participants completed the Post-Survey section

and reported their opinion about the application. Students were asked to rate these items/questions: Q1: My interest in Construction has improved as a result of this exercise. Q2: I believe this simulation will help in learning real-world construction management concepts and strategies? Q3: I find simulation instruction to be a more effective learning tool than traditional lectures Q4: I believe simulation-based learning should be integrated throughout the construction program curriculum. A five-point Likert scale was used to rank each item from totally disagree (1) to totally agree (5) Table 1 shows the mean and standard deviation for each question. The main difference between these two applications was the increase of interest after playing simulation such that application with more graphical features had a higher score. Also, weaknesses of applications, retrieved from open-ended questions, were categorized into six groups. As shown in Figure 1, when fewer graphics are provided in a simulation application (i.e. PERFECT), audio and duration features become very influential. The percentage of Duration and Audio is about twice in PERFECT (fewer graphics) compared with VICE (more graphics).

The results from the comparison of two applications reveal that different features of simulation cause different impacts. Based on the results, nicely designed graphical features in construction simulation could have the potential to convey the impact weight. If based on the design strategy, it is determined to not use graphical features in the simulation, other aspects should be carefully considered to compensate graphics' influence. Although generalization of results needs further tests with a larger population, it can be considered as a general guideline in design and development of construction simulation applications.

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## **The Large Class Phenomenon in Foundational Engineering Courses: Pedagogical Strategies, Needs & Ways Forward**

Michelle Soledad, Virginia Tech; Jacob Grohs, Virginia Tech

This research session explores the current state of literature on the large class phenomenon in foundational engineering courses. Student populations in higher education have increased over the years, & this has led to institutional decisions aimed at managing operational resources, including teaching some courses in large classes. Large classes, however, have been associated with classroom environments that are detrimental to student learning, such as decreased meaningful interaction & feedback between instructors & students. Taking these realities & challenges into account, a literature review informed by methods promulgated by Borrego, Foster & Froyd (2014) was conducted to identify & synthesize prior work on large classes in the engineering context. While the phenomenon has been discussed in literature & prior work has generated pedagogical strategies (e.g. software- & online-based tools) for managing large foundational engineering classes, focused attention on the nuances inherent in these courses is still relatively underexplored. Attempts to apply such strategies, however, call for an understanding of the nuances that is crucial to maximizing the intended outcomes of techniques meant to mitigate the challenges of teaching large engineering classes.

Continued efforts that encourage students to pursue degrees, &, eventually, careers in engineering have led to an increase in student populations in engineering programs (National Science Board, 2014). The need to manage costs & resources while accommodating these increases in student populations has led to the decision to teach some courses in large classes. Large class sizes provide an opportunity to maximize faculty contact hours an institutional resources, & courses that are required of students from multiple disciplines are more likely to be organized in this manner (Parry, 2012). At institutions that offer multiple engineering programs, foundational courses in the engineering sciences such as fundamental Mechanics courses (Statics, Dynamics & Mechanics of deformable Bodies) are usually taught in large classes (Grohs, Soledad, Knight, & Case, 2016). Large class sizes, however, are associated with classroom environments that may be detrimental to student learning (Cuseo, 2007). These concerns are heightened further when viewed in the context of gateway engineering courses, as these have been characterized as both conceptually challenging & yet vitally important (Grohs et al., 2016; Ogilvie et al., 2015). Without a strong conceptual understanding of these foundational courses, students will struggle to develop the knowledge & skills necessary to meet the academic demands of advanced, discipline-specific courses. Best practices for facilitating learning of conceptually-challenging material include having students work in small groups & using in-class activities that elicit active student engagement (Lord & Chen, 2014), practices that are difficult for faculty to implement when teaching large classes (Seymour & Hewitt, 1997).

We conducted a literature search using the search terms large class\*, large class size, engineering & faculty in the following databases: Compendex, Inspec, NTIS, ERIC, Education Research Complete, Web of Science, & Engineering Research, informed by suggested techniques for conducting a literature review (Borrego et al., 2014). Evaluation of literature retrieved from the search were evaluated in three iterations: the first two involved evaluating abstracts for relevance, & the third involved examining the full text of the article. Studies that met the following inclusion criteria were retained: 1) focus on courses in the first 2 years of the engineering curricula; 2) focus on courses taught in large class sizes; 3) focus on classes composed of students from multiple engineering disciplines; & 4) includes teaching & learning strategies, or evaluation of teaching & learning.

The abstracting & appraisal process (Borrego et al., 2014) resulted in the selection of 21 studies for review. The studies were clustered into Strategy only (8 studies); Quantitative (10 studies); Qualitative (2 studies) & Multi-method (1 study). Due to space limitations in this paper, the articles & authors will be shown during the research presentation. Most of the quantitative studies presented data on student perceptions & satisfaction with implemented learning/learning management strategies in large engineering classes using self-report surveys. All the quantitative studies were limited to a specific institution; while sample sizes were substantial, (>100), this number is an inherent characteristic of the large class setting (Mulryan-Kyne, 2010) & not necessarily an indication of generalizability. The qualitative studies, on the other hand, used various strategies of inquiry to collect qualitative data from students, while the multi-method study analyzed quantitative data from surveys, responses to open-ended questions, and existing data.

We observed a dearth in studies that focused on large classes in the context of foundational engineering courses. We operationalized foundational engineering courses as courses: taken in the middle years of the engineering curricula; that provide the foundation for succeeding discipline-specific courses (pre-requisites); and required of multiple engineering disciplines. The techniques and strategies offered and implemented in the studies that we found were presented as opportunities for improvement in the context of large classes in general. None of the studies focused on the identification of nuances unique to foundational engineering courses that may serve as evidence-supported basis for developing strategies to address the challenges of large classes. We observed further that results and conclusions were confined to a specific context, and were short-term in nature; declarations of effectiveness, therefore, were limited to a confined situation and point-in-time. We found opportunities to further explore the phenomenon of large classes in foundational engineering courses in scholarly work. A crucial step that needs to be accomplished before any effective strategy can be implemented is to characterize the large foundational engineering class. Ideally, this data should be the starting point of any effort towards addressing the challenges associated with these classes. This review, however, was unable to find studies that offer such information. Inquiries need to place equal attention on current faculty perspectives and student experiences and how this might inform the development of strategies to improve learning experiences in large foundational engineering courses. The role of the institution in creating effective learning environments in the large class setting may also be explored.

## **The Reluctant College Reader: Student Strategy Use in Disciplinary Reading**

Pennie Gray, Illinois Wesleyan University

The challenges of teaching in higher education are myriad, yet few are as ubiquitous as the struggle to motivate students to complete assigned course readings. There are many reasons students report for not completing the course readings, including not having enough time, being uninterested in the material, or struggling with reading difficulties. However, there may be something college instructors can do to make it more likely that students will complete course readings. There has been an ongoing examination of how students engage with literature in English classrooms, but far less attention has been given to students' engagement with texts in other disciplines. This study, then, explores students' ability to navigate texts in a variety of disciplines and reveals possible causes of students' reluctance to complete assigned readings. Also included are implications for practice that point to the need for campus-wide collaboration in support of student reading engagement.

There have been some enlightening and worthwhile discussions of late regarding the place of reading in the composition classroom. To wit, Ellen Carillo offered a compelling case for addressing reading, specifically, mindful reading, in her 2015 book, *Securing a Place for Reading in Composition: The Importance of Teaching for Transfer*. According to Carillo, reading instruction is often overlooked in the composition classroom, and she implores instructors to attend to reading instruction noting that while college students know how to read, "most are not prepared to deliberately engage in sophisticated forms of reading that are defined by inquiry" (p. 10). Carillo contends that first year composition courses ought to teach students to be mindful readers: to be ever-aware of the specific reading strategies they are using in a given moment and to evaluate whether a different strategy is needed to complete a reading task. Armstrong and Newman (2011) agree and note that students tend to read passively, or "on automatic pilot" and remain unaware of when they no longer comprehend a text (p. 7). Lockhart and Soliday further comment that it is not only the lack of effective approaches to reading that can pose problems for students, but also the volume of reading assigned. Ideally, students come to college with a "constellation of strategies to construct text meaning," but the reality is often quite different (p. 25). Shanahan and Shanahan (2008), in their study of middle and high school students, posit that students still need explicit instruction for managing the demands of the disciplinary readings they encounter (p. 43). The implication of Shanahan and Shanahan's research is that as those high school students matriculate to a university and texts become more complex, the problem is compounded.

The purpose of this mixed-methods study is to illuminate the state of student reading at one university and, through an analysis of the data from the study, strengthen the ways in which reading is addressed in higher education. This study was conducted at a small liberal arts university in the Midwest using a campus-wide survey consisting of twenty-four close-ended questions and three open-ended questions. Once the survey was closed, the narrative responses were collected and underwent open and axial coding. Through the coding process, broad categories were identified. Upon subsequent readings of the data, more specific categories were identified and exemplar responses that reflected typical responses were selected. The data were additionally cross-coded, meaning that the full set of data was coded in two different ways according to various trends. From this coding process, specific themes emerged.

In all, the survey garnered 519 responses (30.6% of the student body) with respondents distributed across each graduating class and every major offered at the university. Additionally, of the 519 respondents, 405 (78%) were female, 106 (20%) were male, and 8 (2%) preferred not to answer this question. This study focused on the open-ended question that specifically addressed respondents' dexterity in using a wide range of reading strategies; the prompt asked: How do you change your reading strategies when reading in different disciplines (e.g., reading for a history class versus reading for a science class)? Out of the 519 survey respondents, 429 responded to this prompt. Results from the data analysis indicated that respondents changed their reading strategies in a number of distinct ways including the thoroughness with which they read; the amount or type of note-taking they engaged in; and the rate at which they read. In all, 308 respondents (72%) were able to name one specific strategy they used. However, 95 respondents (22%) claimed to use no strategies or to not change their strategy use at all when moving from one discipline to another. Strikingly, only 26 (6%) could name multiple strategies used, which they changed and adapted depending on the disciplines in which they were reading.

It appeared that respondents on the whole changed at least some aspect of their reading strategies when they encountered different kinds of texts, indicating that not only were respondents adapting to different kinds of

readings, they were likewise aware of their own adaptability. However, 95 respondents (22%) reported that they did not change their reading strategies when moving from one discipline to another. These respondents might be referred to as non-strategic readers. On the other hand, the respondents in this study who were able to articulate a range of different strategies used in various contexts and disciplines might be thought of as flexible readers. This small group of respondents had a variety of strategies and approaches to choose from and appeared to move seamlessly between strategies as needed. The largest group of respondents who identified only one strategy that they used to varying degrees, then, might be thought of as rigid readers. They indeed did use a strategy, but they did not appear to have a strong repertoire of strategies from which to choose when the reading tasks changed. This left them to use the same strategy time and again, adjusting their use of the strategy to greater or lesser degrees to meet the demands of the disciplinary text. By grouping responses into these broad categories of non-strategic, flexible, and rigid readers, it becomes clear that very few participants in this survey were what could be referred to as flexible—or, to use Carillo's term, mindful—readers, with only 6% (n = 26) falling into this category. These results, then, indicate the need to teach explicitly the disciplinary reading skills students need to engage with college level reading texts in ways that support learning and comprehension.

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## Using High School to College Writing Transition Counter-Stories to Create Antiracist Writing Pedagogy

Jamila Kareem, University of Central Florida

Historically, in the field of writing studies, critical conversations around transitioning from secondary to post-secondary academic writing situations have centered on pedagogical and programmatic perspectives. Student experiences have been absent from these conversations for the most part, and voices of racially-marked students have remained all but entirely absent. This research study details some of the writing and high-school-to-college transitioning experiences of nine Black American students collected from interviews at a predominantly White university in the South. These accounts show what gaps exist in current scholarship and disciplinary knowledge about student writers and transitioning as well as what college educators need to create antiracist, culturally sustaining writing across the curriculum at the transition level.

Writing studies scholarship on transitions from secondary to postsecondary writing practices focuses on a generic student identity, or the unmarked college student (Jennings & Hunn, 2002; Farris, 2009; Tinberg & Sullivan, 2006). The norms of the wider culture mark that unmarked student as heterosexual, able, White American, middle-class, and cisgender male. This scholarship gives little attention to individual and cultural identity factors that may influence writing across academic transitions (Royster & Williams, 1999; Kynard, 2008). Even with the recent release of antiracist scholarship in the field, the high school to college writing transition research remains barren of such scholarship. For marginalized populations of students, the challenges in closing the gap from high school to college academic writing can prove even more significant due to of social factors underlying their transitions. By understanding students' past and continuing racialized experiences in literacy education (Richardson, 2003; Kynard, 2008; Inoue, 2012a; Martinez, 2014), college educators can build antiracist curriculum at the transition-level that honors students' lived experiences, socio-rhetorical needs, and academic knowledge. If a society built in large part on a racial caste system legitimizes whiteness as the most highly coveted asset in all mainstream institutional spaces (Harris 277), the influence of this racial hierarchy on the engagement with writing curriculum for new Black college students should be examined. Still, key disciplinary texts which explicitly discuss transitioning omit race from the conversation (Tinberg & Sullivan, 2006; Hansen & Farris, 2010; Adler-Kassner & Wardle, 2015).

This study expands on research about minding, bridging, and narrowing the gap between high school and college-level writing to draw attention to the transitional experiences of students of color at predominantly White institutions. My project aims to use critical race methodology to centralize student of color perspectives about transitioning into college-level writing. In conjunction with racial methodology, which I use to interrogate the role of race in our research practices around transitioning, critical race methodology marks racially underrepresented narratives as central. Inoue (2012b) offers racial methodology as a way to study how racial formations inform our research, theories, and practices in the study of writing. One central tenet of critical race theory argues that in a society ordered in part by racial identifications, racialized experiences may allow writers and intellectuals of marginalized races to communicate issues to the Eurocentric culture that Whites do not have the language to communicate to each other (Delgado & Stefancic, 2006, p. 4). By this tenet, racial counter-narratives are essential to providing a complete historical perspective of American social institutions, such as colleges. Counter-story has been used as a research methodology that allows researchers to challenge the "humanizing" of "empirical data" (Martinez, 2014, p. 37) that propagate deficit narratives about people of color (Solorzano & Yosso, 2002, p. 4) and the privilege of the dominant cultural way of being (Solorzano & Yosso, 2002, p. 33). I use the unique voice of color here to emphasize how underrepresented racial identities can shape educational experiences in predominantly White spaces. Through this examination, I am able to illustrate the limitations of "universal" writing curriculum for many students.

The primary method to select interview participants included surveying students in the University of Louisville Cultural Center's Early Arrival Program, a program "created to help ease the transition of incoming students of color including African American males, Latin[x] students and Woodford R. Porter Scholars, from high school to college and to teach them the tips and tricks of prospering in their first year of college." After receiving IRB approval, I distributed the survey questions through the web application SurveyMonkey.com to all 150 students in the program and received 37 viable responses. Of the 30 participants contacted for preliminary interviews, 15 responded, and 6 scheduled interviews. The self-selected participants identified as Black American or as more than one race including Black American. The nine student perspectives in my study were shared through semi-structured interviews with all nine participants and in-depth interviews with three of the participants. To understand the

interview responses as they relate to race, academic writing experiences, and transitioning, I coded the responses using open coding with the following classifications: • Personal histories of academic writing, • Conceptions of transitioning and college student identity, and • The absent presence of race for success in college writing. With four of the nine interviewees enrolled in high school or college advanced courses, the findings disrupt common disciplinary narratives that link students of color to remedial writing curriculum at the transition level and illustrate a need for antiracist writing pedagogy across the curriculum that resists making presumptions about these students' needs and experiences.

Most of the interview participants in this study did not recognize the influence of race on their academic success in writing, because it had never been discussed. With the continued disciplinary interest in writing and transitioning, these student perspectives work towards complicating “majoritarian stories” about bridging (Hoffman, Vargas, Venezia, & Miller, 2007) and minding (Farris, 2010) the gap from high school to college writing. To build our knowledge as teachers and program administrators, I offer the results of this study to act as a catalyst for bringing marginalized student voices into critical dialogues on transitioning across sites of academic writing. Coming from the voices, and the experiences, of Black American students gives authority to their perspectives. In a space, such as a predominantly White higher education institution, foregrounding the voices of Black American students who physically disembody the whiteness values of the institution provides more critical knowledge about transitioning. I offer the results of this study to act as a catalyst for bringing marginalized student voices into critical dialogues on transitioning across sites of academic writing. Coming from the voices, and the experiences, of students of color gives authority to their perspectives. In a space, such as a predominantly White higher education institution, foregrounding the voices of Black American students who culturally disembody the whiteness values of the institution provides more critical knowledge about transitioning. From these “unique voice of color” accounts, writing teachers and writing program administrators can learn what culturally sustaining, antiracist curriculum at the transition level may look like for this historically subjugated student population.

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## **Work-Based Learning and Organisational ‘buy in’. Why do organisations take students from the Applied Criminology course?**

Anne Eason, University of Worcester; Kate Bramford, University of Worcester

The preceding research undertaken by the authors explored the role of placements in criminological teaching, *The Pedagogy of Placements in Criminology Teaching: An Interactive Parallel Model of Criminological Learning* (Bramford and Eason, awaiting publication), concluding that an integrated parallel model of learning occurred, where criminological theory could be critically understood in its application to practice from both student and organisational mentor. This subsequent study explores the views of the organisations providing placements for the applied criminology course, what factors contributed to their willingness to offer placements and what, if any value those placements played in building constructive relationships with local and regional organisations. The authors hoped to find out what impact the mentoring training had and whether this was significant in their decision to become a placement provider; the findings were compelling. In conducting a thematic analysis of semi-structured interviews with key personnel from the organisations, the responses indicate that in addition to enhancing the relationship between the university and criminal justice sector, reciprocal learning was a strong theme that supports the parallelism and integrated nature of the model previously proposed by the researchers. However, what was also interesting, was the dynamism organisations felt the students brought to practice, described as motivating staff through the creativity of new perspectives in delivering interventions. The participants expressed how the applied criminology students took a pragmatic often passionate and innovative approach to working with people that they felt other students or indeed, graduates had not taken before. They felt they brought ‘fresh thinking’ and enhanced capacity to often overstretched providers in an overstretched market; a supply of skilled, potential recruits who understood the broader criminal justice provision.

Jarvis (2002) discusses the organisational environment as that which can provide a forum to embed theoretical knowledge into practical experience and which is commented on in the authors work (Bramford & Eason, awaiting publication) which explores formalised placements in a criminological programme of education at the University of Worcester. The research showed that placements facilitate this idea and building on the notion of triadic learning (Dalrymple, Kemp and Smith, 2012) we discovered an interactive parallel model of learning for both student and mentor. The ability to assess professional competency has been a problematic area in the traditional careers (Kolb, 2015, p.261) and although every possible effort is made to ensure that the appropriate knowledge and skills are embedded in higher education routes for vocational professionals it is only “the process of socialisation into a profession [that] ... intense experience that instils not only knowledge and skills but also a fundamental reorientation of one’s identity”. As the criminal justice provisions expand beyond the public-sector agencies so a source of experienced and knowledgeable recruits has become even more problematic where higher education programmes do not generally integrate experiential learning. The Applied Criminology programme at the University of Worcester was designed to reflect the needs of the market of which experience of working in a range of sectors was considered one of the most important. In addition, the course has three taught practice modules with learning outcomes aligned to the NOS. This is reiterated in the work of Wilson (2016) who reports that for universities engaging with organisations it is essential to remain competitive whilst providing a rich source of candidates for recruitment and that organisational ‘buy-in’ can be prompted by employability and employment opportunity that work experience gives.

Unlike the pragmatic mixed method design used in the first stage of the research (Onwuegbuzie and Leech, 2007) a realist approach was adopted as the philosophy for gaining and understanding the individual explanations of the factors that contributed to the ‘organisational buy-in’ of offering the students placement opportunities. “Realism argues that the knowledge people have of their social world affects their behaviour” (May, 2001, p.12) and therefore the authors employed the assumption that by exploring the underlying understandings of the key personnel the research could ascertain the interest in facilitating a student placement. Taking a grounded theory approach also allowed the opportunity for any new ideas to evolve. This was something as former practitioners and now criminology teachers, the authors were keen to develop, particularly if this would lead to an improvement in the model being developed that aligned with the idea of ‘work experience as a gateway to talent’ (Wilson, 2016) Ethical approval for the research was sought through the University of Worcester Ethics Committee adhering to both the University Ethics Policy and the British Society of Criminology Code of Ethics . Once favourable approval had been

received the providers of placements for the Applied Criminology course were contacted and offered the opportunity to participate. Of the 20 organisations who provide placements in Worcestershire, West Mercia and the West Midlands, 11 (55%) agreed to participate. An independent researcher, who also acted as gatekeeper, supported the delivery of the semi-structured interviews reinforcing the objectivity of the research (May, 2001, p.9) by avoiding leading questions or anecdotal discussion that may have influenced the participant's responses.

Joint analysis of the data also assisted in negating sub-conscious value-judgements although the authors are not idealistic enough not to acknowledge that the pursuance of further evidencing their developing theoretical model of learning, might not have any influence. It was hoped that taking these precautionary measures would help endorse the validity of the outcomes. The interviews were recorded and independently transcribed for use in a thematic analysis that followed the six phases as outlined by Braun and Clarke (2006); preparatory reading of the transcripts was undertaken to identify any recurring words and phrases in the explanations that could support the theoretical model of interactive parallel learning, whilst allowing new ideas and critical understandings of the mentoring/organisation experience the opportunity to develop. Whilst the results highlighted several themes of interest, those of particular relevance were reciprocal learning and dynamism. The former threaded throughout the responses identifying how working with students enhanced staffs recall or improved their knowledge of evidence-based practice. This was supported by the feeling of open communication and collaborative working with the university. Feedback in regard to the mentor training suggested it provided a framework of understanding through which the mentors were able to guide the student but also an opportunity for self-professional development of the mentor. Dynamism was the most predominant theme when participants were asked if the students brought value to the organisation. Dynamism or creativity in thinking was a strong theme suggesting the students brought fresh ideas, contemporary understandings and a motivation to engage with the organisation and service users. The participants felt that the experience of placement helped broaden the student's perception of the criminal justice and the wider sector, and the service users and staff that populate them. This was felt to be very useful in terms of multi-agency working and future employability.

Whilst it is acknowledged the size of the respondents in terms of how many agencies participated is small, it does represent over 50% of those who provide placements and there is overwhelming feedback that suggests applied criminology students who go through a work-based learning model, are indeed more employable due to their experiential learning. The mentoring training is also highly valued and a contributory factor not just in taking students on placement but in the work-based learning experience being beneficial to both student and mentor and thus, the organisation. The analysis of the data demonstrates that another salient factor to an organisations willingness to provide placements is centred around the idea of contributing to the next generation of criminal justice employees. In offering a placement opportunity they are exposing students to the different ways in which 'people-orientated' organisations work with service users and other agencies, broadening the students understanding of who a service user is and what works effectively in rehabilitation and crime reduction. Moreover, it provides opportunity to recognise the laterality of criminal justice; homelessness and housing, substance misuse, advocacy, education training and employment, and much more. This is perhaps not only a positive reflection of collaborative working between the organisation and the university but of the type of organisations that are involved in criminal justice provision; organisations that value experiential learning and the long-term benefit of such an alliance. This is in direct alignment with the work of Wilson (2016) and her evaluation of the value placed on experiential learning in a practical environment in preparation for 'real world' employment. This research further supports the interactive parallel model of learning. It also demonstrates the benefits to the organisation in terms of future recruits and the development of current employees, ensuring continued collaborative working with the University of Worcester.

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# POSTER SESSIONS

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## **A Comparative Study of the Effects of STEAM and STEM programs on Creativity in Higher Education**

Kihyun Nam, University of Georgia; Jeeyoung Chun, Virginia Tech

**A Comparative Study of the Effects of STEAM and STEM programs on Creativity in Higher Education Abstract:** The purpose of this study is to compare the effects of STEAM and STEM programs on the creativity in higher education. Three hundred first year undergraduates will participate in the study. To this end, a sample of 300 students will be chosen and randomly divided into two equal groups of 150 students, and each experimental group will be assigned to a STEM and a STEAM program respectively. Both groups will complete the Torrance Test of Creative Thinking (TTCT) in pre- and post-test stages. The TTCT will be used to measure students' creativity, and the data will be analyzed using a paired t-test. **Keywords:** STEAM, STEM, Creativity, TTCT

**Introduction** A STEM (Science, Technology, Engineering and Mathematics) education has been stressed in the field of education in the recent years. Many educators would argue that STEM is missing a key set of creativity-related components that are equally critical to fostering a competitive and innovative workforce, and those skills are summarized for the Arts. This study aims to investigate the effects of a STEAM (Science, Technology, Engineering and Mathematics) program on developing creative abilities among first year college students compared to a STEM program. A sample of 300 students will be chosen and divided into two groups, and each of group will be practiced by a STEM and a STEAM program respectively. Each group will consist of 150 students. Both groups will complete the Torrance Test of Creative Thinking (TTCT) in pre-and post-test stages. The study sample consists of 150 students from first-year undergraduates who will be randomly selected and divided into an experimental group and a control group. The STEAM and STEM program will be conducted for three months. The proposed research questions for this study are as follow; To what extent can a STEAM program enhance creativity among undergraduates?, and which has greater impact on creativity, a STEAM or STEM program?

**Literature Review** The STEM acronym emerged in 1990's through NSF driven initiatives to group science, technology, engineering, and math together (Sanders, 2009). STEM became popularized through emphasis from policy makers. There is a federal strategic planning process for improving STEM education and the Obama administration has proposed the goal of producing 1,000,000 additional STEM graduates by 2020 (Holdren et al., 2013). The rational supporting STEM education is typically framed as a means of remaining internationally competitive. There has been some debate and research that suggests the arts are well-suited to be combined with science, technology, engineering, and math disciplines making the STEM to STEAM. One area that has received particular attentions in education and policy debates is the STEM to STEAM movement, the impetus to include the arts in science, technology, engineering, and math learning (Maeda, 2013). The emerging STEM to STEAM movement is largely grounded by an effort to incorporate the arts with STEM as an equally important, and not simply a supplementary subject (Bequette & Bequette, 2011). Land (2013) discussed the benefits of integrating the arts into STEM to STEAM, because education must foster not only problem-solving skills but also problem seeking skills all while maintaining the interest of the students. Bailey (2015) argued that an emphasis on STEM without the addition of the "Art" could lead to a gradual dilution of creativity skills and a withdrawal to the safety associated with the familiar and the known. STEAM education is based on the promise that STEM and the arts function better together than they do apart. STEAM is a relatively new term, but collaborations across the intersections of the arts and STEM are not a novel idea.

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## **A New Goal for Higher Education: Fostering Students to Become Lifelong Learners**

Yi Hao, College of William and Mary

Lifelong learning is commonly perceived as a term to describe non-traditional students going back to college for education. Helping students understand the importance of lifelong learning is a good place to start. All students, nontraditional or traditional, need to be prepared for learning in their ad hoc education. Learning often times is defined too narrowly. In fact, learning can happen at almost every moment in our daily life and at anywhere; it does not require specific locations or times. According to William James (2001), every new association we make in our mind is a new effort in learning. Thus learning should be defined broadly as anything that requires deliberate and voluntary actions. More importantly, our job as educators should be fostering the skills for lifelong learning through our learning and teaching practices. Instructional guidance and particular pedagogies prove to be useful in enhancing lifelong learning attitude; some of the practices include problem-based learning (PBL), intentional learning, reciprocal teaching, and cognitive apprenticeship (Dunlap, 1997). Candy (1995) had similar suggestions for college educators through an emphasis of self-directness, peer assistance, PBL, resource-based learning, reflective practice, and self-awareness, as well as a climate of intellectual inquiry. What is common across these methodologies is that they create knowledge-building communities, specifically focusing on collaboration, reflection, autonomy, and intrinsic motivation. College should be a time for students to understand, explore, identify, and reflect on what and how they have learned. Fostering that lifelong learning attitude in higher education allows us educators to teach more high-level skills and awaken students to become more in tune with themselves as learners. The presenter will share the

philosophical background and theories of adult learning and how to use these theories to guide learning and teaching practices at graduate education level

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### **Adaptable Course Materials: Creating an Open Textbook for Electromagnetics**

Anita Walz, Virginia Tech; Steven Ellingson, Virginia Tech

In this poster we describe the purpose, process, and product of developing the open textbook. Electromagnetics, Volume 1 (Beta) by Ellingson (2018) is a faculty-authored, LaTeX based, customizable, and openly licensed textbook (licensed Creative Commons Attribution ShareAlike CC BY SA 4.0) published through VT Publishing of the University Libraries and publicly released as a Beta version. This poster explores the potential and process of reusing, developing, and publicly sharing modular and customizable course materials (open textbooks) licensed with Creative Commons licenses in support of addressing faculty desire for more flexible, adaptable, and lower cost course materials. Electromagnetics Volume 1 (Beta) was published in January 2018 by VT Publishing and made possible in part by the Virginia Tech University Libraries' Open Education Faculty Initiative Grant Program. The text is currently being field tested Spring 2018 ECE 3105 with ancillaries, LaTeX source code, and new print and electronic versions expected to be released in Summer 2018. It is freely and publicly available at: <https://doi.org/10.7294/W4WQ01ZM> A low-cost print on demand version of Volume 1 BETA is also available via Amazon.com for under \$30. This textbook is part of the Open Electromagnetics Project at Virginia Tech. The goal of the project is to create no-cost openly-licensed content for courses in undergraduate engineering electromagnetics. The project is motivated by two things: lowering learning material costs for students and giving faculty the freedom to adopt, modify, and improve their educational resources

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### **Analysis of Students' Daily Documentation of Nutrition Related Conditions During Clinical Rotations to Inform Curricular Developments in Medical Education**

Susan Meacham, Edward Via College of Osteopathic Medicine; Cameron Sumpter, Edward Via College of Osteopathic Medicine; Fred Rawlins, Edward Via College of Osteopathic Medicine; Harold Garner, Edward Via College of Osteopathic Medicine

The prevalence rates of numerous nutritionally sensitive conditions remain higher than state averages in Virginia even after recognition of the problem decades ago. Primary care physicians, serving on the front lines of health care, are in the best position to integrate nutrition into patient care. The Edward Via College of Osteopathic Medicine (VCOM) has introduced a new system to document students' experience while on clinical rotations. VCOM currently has 540 third year osteopathic medical students on three campuses on clinical rotations, 250 locations in numerous states. Daily students entered clinical conditions and procedures codes into a database to record the experiences they encounter. This large volume of data collected systematically provides our pre-clinical faculty members and clinical preceptors with a new perspective on how to prepare the next cohort of students for clinical rotations. In the first 1.5 months students made 76,000 entries and 50, less than 0.07%, have included a nutrition code. Malnutrition alone is known to present with a greater prevalence rate than this results suggests in today's hospital settings. To conclude medical, pre-clinical education should reinforce inter-professional team building in primary care education to emphasize the importance of medical nutrition therapy when caring for patients with nutrition-sensitive conditions

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### **Assessing Student Academic Motivation in Living Learning Communities**

Ashley Taylor, Virginia Tech; Karis Sinkler-Boyd, Virginia Tech; Walter Lee, Virginia Tech; Susan Arnold-Christian, Virginia Tech; Kim Lester, Virginia Tech; Beville Watford, Virginia Tech; Teirra Holloman

Broadening participation of underrepresented groups in engineering remains a national priority for strengthening the engineering workforce (Lichtenstein, Chen, Smith, & Maldonado, 2014; Yoder, 2012). Living Learning Communities (LLC) are one recent intervention developed to increase support for underrepresented students in engineering (Banks, 2012) through peer interaction, mentoring relationships, professional development opportunities, and academic support. The MUSIC Model of Academic Motivation provides a useful tool for evaluating motivation in LLCs. Components of the MUSIC Model have been closely linked to persistence in an engineering major (B. D. Jones, Ruff, & Paretto, 2013; B. D. Jones, Tendhar, & Paretto, 2016) and feelings of belongingness in engineering (B. D. Jones, Paretto, Hein, & Knott, 2010; B. D. Jones et al., 2016; Jones, Osbourne, Paretto, & Matusovich, 2014; Lee, Brozina, Amelink, & Jones, n.d.). This ongoing work uses the MUSIC Model of Academic Motivation (B.

Jones, 2009) to assess motivational constructs in LLC academic coursework. A slightly modified version of the MUSIC Inventory was administered to all first year engineering students in the Galileo and Hypatia LLCs via a web-based survey tool. Students rated the LLC coursework most highly for the constructs of success (5.55/6) and caring (5.28/6). Students' responses reflect lower scores for constructs of interest, empowerment, and usefulness. Insights from this assessment are being used to improve curriculum for the Galipatia LLC and the first year LLC experience. Findings to date suggest that the MUSIC Model of Academic Motivation may be a powerful tool for assessing LLCs. Additionally, LLCs may leverage insights from MUSIC Model to more comprehensively support underrepresented students in engineering

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### **Best Practices in Completely Online Graduate Level Engineering Courses**

Elizabeth Spingola, Virginia Tech

Large universities and colleges around the United States have encouraged the initiative of completely online courses that numerous students can participate in without the burden of being on the physical campus. Virginia Tech has recently begun expanding the pursuit of online courses through its VT Engineering Online program. Through this initiative, the office has focused on expanded graduate level engineering courses with no physical component. However, creating graduate level online engineering courses have two main difficulties: 1) creating online courses out of traditionally hands on course material, and 2) migrating traditional courses into an online environment in a meaningful, productive, and efficient manner. To help understand how these difficulties were minimized and overcome, the researchers on the College of Engineering Instructional Technology team investigated graduate level engineering courses at Virginia Tech that already resided online, such as the Aerospace Engineering masters degree program and the Masters in Information Technology. To investigate these programs, the researchers conducted interviews with students of the programs, information technology specialists that support the programs, administrators for the programs, and faculty that teach some of the courses in the programs. Through collecting and analyzing these data, the researchers were able to create a list of pitfalls and successes when creating and supporting graduate level online engineering courses and degree programs. These results will help the Instructional Technology team create meaningful and useful online engineering courses. This poster will detail the process and findings of the team and will encourage further conversations as to how to create meaningful, productive, and efficient online graduate level engineering courses.

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### **Building Bridges- Two Black Professors Employ Race and Culture of Origin to Facilitate Counselor Skills Acquisition in Higher Education. A Case Study[Poster]**

Kerley Perminio Most , Liberty University; Joy Mwendwa, Liberty University

At a Southern university, 32 students from a Masters in Counseling program acted surprised. Two Black females were their professors for a group counseling intensive course. The student's surprise made sense. Black individuals represent only 4% of professors in higher education while White individuals represent 87% of tenured faculty (Allen, et. al, 2000). There is a strong relationship between social-academic challenges and the low number of African American scholars (Cook & Cordova, 2006; Nettles & Millett, 2006; Sowell, Allum, & Okahana, 2015). This writer has nothing against white professors, yet, Leung, Maddux, Galinsky, and Chiu (2008) defended that multicultural experiences enhances creativity and supports cognitive retrieval and ease of access to otherwise inaccessible knowledge. The lack of diverse faculty in higher education might deprive students of possible rich experiences. According to Hofstede (1986), when cross-cultural situations are presented in the classroom, professors are responsible for any adaption necessary to ensure learning. The Black professors facilitated learning by integrating positive aspects of their Afro-Brazilian and Kenyan culture into their teaching. They prioritized relationships, emphasized discussions and dialogue; offered hands-on coaching, focused on experience; encouraged dance and laughter; respected and utilized students' spirituality to foster hope (Ocitti,1973). As the week progressed class cohesion, confidence and risk taking increased. Students received high scores and professors positive teaching evaluations. It seems that the professors culture of origin based interventions enhanced learning. Something different happens when race and cultural barriers are transformed into bridges where diverse cultural wisdom promotes and facilitates learning (Hofstede,1986).

## **Combining Experiential and Service Learning in Agriculture Research**

Wesley Gwaltney, Virginia Tech

The subject matter of agriculture lends itself readily to the implementation of both experiential and service learning and the Agriculture Technology Program (AT) utilizes these practices in many of our upper level courses. For the second year in a row, two AT students have received Pratt Undergraduate Research Scholarships for research conducted at the Giles County Land Lab (GCLL). The work that AT is involved in at the GCLL in Pearisburg, VA, offers faculty an opportunity to marry experiential and service learning for our students. The mission of the GLCC is to provide learning experiences for K-12 students in Giles County, VA. K-12 students learn about agriculture, environmental science, math, engineering, and humanities through lessons facilitated in a farm setting. The Pratt recipients work directly with high school agriculture teachers and students to implement AT research. The AT students' research concerns methods of improving forage quality, decreasing the need for stored feeds, improving herd health, and reducing erosion potential on the grazing portion of the GCLL. Through their experiential and service learning at the GLCC, AT students will gain a more comprehensive understanding of intensive grazing and conservation practices while also being a service to the GLCC and its users.

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## **Conversation: Evaluating Taxpayer-funded Prison Education**

Jessica Long, Mercer University

The Violent Crime Control and Law Enforcement Act of 1993 cut funding to virtually all educational programs in federal penitentiaries across the country. Today, an inmate seeking an education has little-to-no options for learning at a level higher than vocational certificate programs. For a college education to be realized, an incarcerated individual must not only pay for tuition out of pocket, but also deal with instruction via mail, rather than face-to-face. As consideration for reinstating Pell Grant eligibility for prisons increases, so too are the arguments against this form of taxpayer-funded financial aid. The arguments for and against reinstating financial aid eligibility in prisons are discussed, alternative options may be presented, and ways in which laypeople can advocate for prison reform will be considered.

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## **Conversation: Integrating technology- Does it benefit all students?**

Trecialeen Young, Mercer University

As the landscape of learning is continuously being shaped by technological factors, educators are brainstorming the most effective ways of incorporation.

Technology has a host of benefits. The Personalized Learning environment approach, students with diverse goals, backgrounds and skills can explore practices and learn digital literacies that help them progress toward their professional goals (Laakkonen, 2015). However, there are also setbacks that need to be addressed. According to Bloxham (2017) changes in technology are lessening the reliance on higher education as a career tool. Most computer programmers or coders in the future will likely be high school grads and advances in robotics and artificial intelligence are on course to eliminate jobs in the future.

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## **Conversation: Technological advances that can be integrated into higher education for students with disabilities**

Jonathan Brown, Mercer University

Technology is an ever evolving entity in society today. With so many technological advances occurring daily, there are various avenues for their incorporation into higher education. Students living with disabilities can greatly benefit from the integration of such technology in the educational environment. This presentation will look at various technological advances that could prove to be beneficial to the student's academic success.

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**Conversation: Which format lends itself better to deep and significant learning experiences- distance education or traditional face-to-face format?**

Kenyon Knapp, Mercer University

For about twenty years, various forms of distance education have been growing in popularity in American higher education. Some say convenience is all that drives this trend, and that the quality of learning is diminished, while others argue the opposite. What should be driving the discussion is a careful consideration of which format creates significant and deep learning for the students. Current research will be shared on this topic, and a guided discussion will follow regarding how significant and deep learning can be best achieved.

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**Counselor Educator Preparedness: Doctoral Teaching Interns' Experiences**

Patricia Kimball, Liberty University; John Harrichand, Liberty University; Krista Kirk, Liberty University; Joy Mwendwa, Liberty University

The 2016 Council for Accreditation of Counseling & Related Educational Programs (CACREP) Standards (2015) specify nine teaching standards for doctoral programs under Section 6.B.3. Learning to teach effectively is a significant component of a counselor educator's vocation due to the reality that the student will spend a majority of their professional career in some sort of classroom setting, be it residential, intensive formats, and/or on-line. According to Hall and Hulse (2010), faculty search committees in counselor education programs have required prospective faculty to demonstrate competent teaching skills as part of the interview process. One way to prepare future counselor educators to participate in this portion of the profession is through direct teaching experience. This poster presentation will focus on doctoral teaching interns' experiences. Presenters taught in master's level counseling programs in three different formats: residentially, weekend intensive, and online instructional settings. Presenters will share their experiences of how they developed counselor educator skills within the three teaching contexts. Furthermore, implications of developing teaching skills in doctoral programs and counselor educator preparedness will be addressed. This poster will present the experiences of counselor educator development for doctoral teaching interns in a counselor education program using charts and tables to distinguish three teaching modalities: residentially, weekend intensive, and online, and memos to capture verbal and written communication. The data will be used to inform administrators, faculty, and doctoral and master's students on creative ways in which pedagogy can be integrated into the counselor education curriculum.

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**Designing peer teaching using the backwards design strategy and retrieval, spaced, and varied practices in undergraduate courses**

Xinyu Zhang, North Carolina State University

A well-designed peer teaching activity is a very powerful learning process and it can increase the benefits to student retention rates, student confidence, interpersonal skills, and critical thinking skills. However, the design of peer teaching often faces challenges and limitations because of student hesitancy and inexperience, as well as the elevated risk of creating unintended misconceptions of the material. The goal of this practice is to design and implement a class wide peer teaching to reinforce key concepts and interpersonal skills in an undergraduate course. The backward design strategy was applied to ensure the peer teaching activity and its assessment planning aligned with the established learning objectives. In addition, the peer teaching activity was integrated with at least two other learning activities (e.g., lecture, quiz, metaphor, case study, etc.) to create a series of retrieval, spaced, and varied practices for each target concept. For example, the instructor taught the concepts in the classroom by lecture or other method. Next, students re-teach the same concepts to their peers in their own words and provide an example application to reinforce the understanding of the concepts. Finally, the students individually solve a problem presented to them using the concept they learned from the instructor and reinforced by their peers. Since each concept is revisited multiple times with different learning strategies, it will reduce the potential chance of misunderstanding while increasing the certainty of memory retention based on the reiteration of the concepts by different methods. Student learning outcomes were assessed by both their participation scores and their quiz scores. Participation scores, calculated from both peer and instructor assessments, were used to evaluate the student's effort in class, while quiz scores were used to evaluate the student's mastery of the concepts presented in the classroom. The backward design strategy and retrieval, spaced, and varied practices have shown to be very helpful when designing peer teaching activities into the undergraduate classroom.

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### **Development of an Interprofessional Scholarship Advisory Group (iSAG)**

Mariah Rudd, Virginia Tech Carilion School of Medicine; Shari Whicker, Virginia Tech Carilion School of Medicine; Helena Carvalho, Virginia Tech Carilion School of Medicine

Background: At an academic medical center with growing expectations for scholarship, those who are focused on medical education research may encounter hurdles to publish. The challenges to publish in a peer review journal impact promotion, funding and research opportunities. As part of the newly founded Teaching Excellence Academy for Collaborative Healthcare (TEACH), a focused initiative was to support those who are interested in medical education scholarship. The purpose of the group is to serve as a support for education research and scholarship, provide a collaborative peer-mentoring environment in education research and improve the production of scholarly outputs. Methods: A small multidisciplinary group formed of individuals from across the health system representing various departments (veterinary school, basic science education, library, faculty development) and institutions (VTCSOM, JCHS, VT) proposed the formation of a “posse”. The idea was to surround themselves with likeminded individuals who will work together to promote education scholarship. The group, named the Interprofessional Scholarship Advisory Group (iSAG), is comprised of professionals with complementary talents and skills that support the scholarly needs of the group. iSAG meets monthly to discuss projects that are in the works or being developed, scholarship hang-ups, or brainstorm new scholarly ideas. Everything discussed during meetings is confidential. Meetings do not exceed one-hour in respect of participants’ schedules and agenda items are collected electronically prior to each meeting. Results: In early 2017, iSAG was founded by eleven participants who shared an interest for medical education and medical education scholarship. Over the course of several months, iSAG members have gathered to discuss potential medical education scholarship ideas and provide guidance on current projects. iSAG as a community of educators implemented active peer collaboration that benefits from a diverse interest and skill set. The small meeting group size allows for a comfortable environment which promotes peer support and collegial exchange of ideas. This community of practice has evolved in the short few months since conception to accommodate busy schedules and allow remote participation options. Discussion: iSAG has provided a viable model for developing a community of practice and fostering scholarship for health professions educators at our institution. In the few months since its inception, iSAG has proven itself a successful model for providing support and encouraging the scholarly productivity of its members. In summary the project has experienced a successful launch and has been an inspiration for its members.

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### **Effect of American Higher Education on Teachers’ knowledge; An International Comparison**

Roofia Galeshi, Radford University; Cai Jinghong

The cognitive skills of American professional workforce is mostly accredited to what they have learned at college combined with their continued professional development. As the result, the assessment of their cognitive skills can be attributed to the assessment of their higher education. This study focuses on the comparison of American teachers’ literacy and digital problem solving skills with teachers from Canada, Finland and Japan and the role of professional development on these skills. We used The Program for the International Assessment of Adult Competencies (PIAAC) for this study. PIAAC is a large-scale international study of adult skills and life experiences focusing on education and employment. The goal of PIAAC is to assess and compare adults’ basic cognitive skills around the world, to provide data to help countries better understand how education and training systems can nurture key cognitive skills, and to assist educators and policy makers in the use of the data for developing economic, education and social policies (Goodman et al., 2013). Cognitive skills are measured in three domains: literacy, numeracy, and problem-solving in technology-rich environments. PIAAC collects a broad range of background information, including information regarding lifelong learning, such as formal education, formal training at work, and skills used at work and in other contexts. PIAAC provides a direct measure of cognitive skills with a unique edge. While existing literacy assessment

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### **Encouraging Interdisciplinary Critical Thinking using Exploratory Writing**

Justine Jackson, Radford University

Students are often encouraged to critically think in higher education but are not provided the assignments and activities that successfully promote such practices. Exploratory writing, defined by scholar John C. Bean (2011), is “the kind of exploratory thinking-on-paper writing we do to discover, develop, and clarify our own ideas. Exploratory writing is typically loosely structured and tentative, moving off in unanticipated directions as new ideas, complications, and questions strike the writer in the process of

thinking and creating” (p. 120). By utilizing exploratory writing assignments and activities, instructors of all disciplines could enhance their students’ critical thinking skills. In-class writing, creative exercises, research journals, and rapid first drafts are just a few of the assignments and activities used by my students to develop their critical thinking skills while simultaneously meeting course goals and objectives. While these assignments and activities are low-stakes, the insight students provide into their own thought processes is invaluable. When students are able to forgo concerns regarding grammar, mechanics, and structure, they are able to address the more pressing matter of content. Whether students are worried about organization, know they want to include significant details but aren’t sure where to place them, or want to express general anxiety towards an assignment, exploratory writing allows students to empty their thoughts onto the page. Instructors can assist students that need help clarifying their ideas or intervene if a student struggles to grasp the objective of the assignment. In addition, using exploratory writing at the start of the writing process disrupts linear thinking by challenging students to think past dichotomies and requires students to revise their work into more substantial and coherent writing.

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### **Engaging Students, Uncovering History, and Identifying Technology through Favorite Foods Discussion**

Travis Bradshaw, Liberty University

Asynchronous discussion boards have been a common tool in online delivery formats for over a decade. However with a heavy reliance on text based prompts (Bender, 2012), instructors struggle with identifying topics that will spur genuine discussion and solicit more than minimal compliance/postings. Hot topics can solicit participation and lead to a genuine exchange of ideas. Successful discussion board topics in high school and introductory college courses should focus on subjects that are broadly known by most students. This project encourages class participation through a favorite foods discussion. Food is a topic that everyone knows something about. Food discussions open up further inquiries related to food geographic origins, food historical connections, fond food memories, food health concerns, and the time-space convergence brought about by technological change, especially as it relates to food delivery. The presenter will show a one-page handout concerning the origins of the most common foods. The presenter will provide selected examples of historical food production areas, along with examples of common staple crops by region. Participants will explore technology and production costs, as related to common health concerns. During this presentation, the presenter and participants will also discuss modern technologies associated with food packaging and transport (Warf, 2011). The presenter will mention implications for geographers, historians, dieticians, farmers, and consumers. The presenter will highlight common food-music, food-holiday, food-activity, food-events, and food-sport connections. There will be multiple opportunities for interaction and discussion. The presenter will solicit input on personal food choice preferences and historical food linkages from attendees. Participants will have opportunities to participate and share ideas on the handout readings and smart device research activities.

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### **Enhancing Empathy in Higher Education**

Steve Warren, Ph.D., Liberty University; Anita Knight, Ph.D., Liberty University; Kelly Carapezza, M.A., Liberty University; Keaghan Macon, M.S., Liberty University; Patrice Parkinson, Liberty University; Yaa Tiwaa Offei Darko, Liberty University

Current trends in empathy research focus on spreading empathy education throughout the helping professions (Ekman & Krasner, 2017). Watters (2013) discussed the link between narcissistic attitudes, student-centered pedagogical practices, and improper entitlement. The authors suggest increasing empathy to address this trend in higher education. The purpose of this study was to assess the empathy of university students before and after a counseling skills training course helping professionals to hear and understand others in an empathic context. Empathy was assessed pre and post using the Interpersonal Reactivity Index (Davis, 1980) and the Empathy Quotient (Allison, Baron-Cohen, Wheelwright, Stone, & Muncer, 2011). Statistical analysis were conducted in the form of paired samples t-tests using Statistical Package for the Social Sciences (SPSS). Results are discussed in light of future implications for higher education, and resources are provided for empathy building exercises that can be used in a workshop format or in the classroom.

## **Ever Evolving Technology: The Costs to Faculty for Technology in the Design Classroom**

Doris Kincade, Virginia Tech; Elizabeth Dull, High Point University

Some researchers confirm that technologies used in the classroom have positive effects on student learning (Kashy, Ablertelli, Kasy, & Thoennessen, 2001). This sounds encouraging but at what costs to the faculty member? As noted by Laurillard (2012), with the exception of blackboards and chalk and the Virtual Learning Environment (VLE), teachers at all levels have been at the mercy of technology from forces outside of education, but have been expected to adapt quickly and bring these new developments into the classroom. Adapting has been especially challenging for faculty in design fields where resources from industry are limited and need for visuals is major. For those of us contemplating retirement after 40 years in the classroom, the changes are mind-boggling. In an overview of design-related technology, these changes fall into two categories: written/drawing and visual. In addition to itemizing change, we examined our “costs” as defined by skills and equipment we mastered. In writing/drawing, we started with copies made on a spirit duplicator and drew with T-squares and croquille pens; and visually, we began teaching with opaque projectors (oh, those cooked books!) or slides made from images we took, developed and cropped with silver tape, glass and cardboard. Now, we produce designs with computer-aided software such as Adobe Illustrator and take digital pictures for instant images. Our costs are not only the time needed to gain computer skills but also the expensive equipment. Our poster will show steps of progression for technology changes we incurred in design and costs in skills and equipment needed to evolve ourselves. Our conclusion is that the tasks of bringing drawings and images into the classroom never got easier, but our students continued to benefit, and some funny things happened along our journey.

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## **Examining beliefs about knowledge and course motivation among incoming college students**

Chloe Ruff, Gettysburg College

Each year new undergraduate students sit in classrooms and lecture halls, listening to professors, participating in discussions and activities, reading, writing, and (hopefully) evaluating a range of information. Each of these students enters the classroom with a set of experiences and understanding of the material. They also bring a set of beliefs about knowledge that affect their cognitive engagement with the course materials and their motivation to participate in class activities (Barger et al., 2016; Buehl & Alexander, 2006; Schommer-Aikins, Duell, & Hutter, 2005). The purpose of this study is to examine the relationship between the domain-based epistemological beliefs (EB) and the components of course motivation for first-year undergraduate students in a biochemistry course designed to introduce prospective majors to the field of biochemistry using cluster analysis and MANOVA. A two-step cluster analysis led to five student profiles based on responses to a survey of students’ epistemological beliefs related to biochemistry. The five profiles showed groups of students who hold distinctly different beliefs about knowledge in biochemistry. The MANOVA and post-hoc tests comparing students’ course motivation using the MUSIC model of academic motivation showed no statistically significant differences amongst components of the groups’ course motivation. However, preliminary coding of open-ended questions suggests that the EB profiles describe different types of course activities as autonomy-supportive, useful, and supporting their success in biochemistry. Instructors should be aware that students enter college not only with different levels of knowledge, but also with different beliefs about scientific knowledge that affect how they respond to different course activities. Integrating activities related to the MUSIC model components of empowerment, usefulness, success, interest, and caring into the course design may be an effective way of supporting the motivation of students with diverse beliefs about knowledge.

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## **Examining Disciplinarity in Higher Education**

Hannah Davis, Virginia Tech; Katherine Biddle, Virginia Tech

This poster highlights the progression of academic practices from working within a silo of specific knowledge to the practice of creating an holistic approach that transcends disciplines. A combining of disciplines is becoming increasingly important in the workforce, as the information necessary for addressing problems is often located outside of the problem itself (Blackwell, Wilson, Street, Boulton, & Knell, 2009). The AAC& U touts the need for intentionally presenting problem-solving situations that require collaboration through the “integration of perspectives, disciplines, and differences” (Lake, 2015, p.251). Their Integrated Learning rubric prompts students to apply learning from one area to address complex issues in innovative ways (AAC&U, 2009). Mastering the core academic subjects is an insufficient way to prepare students for a world that relies on communication, collaboration, creativity, innovation, and problem solving (Vockley, 2007). Calls for higher education to support integration reflect the current world. “Real world problems are rarely confined to the artificial boundaries of academic disciplines” (Choi & Pak, 2006, p. 357).

Lived experiences are not contained within specific silos; lived experiences are an exercise in multiple disciplinarity. Working across disciplines can often be confusing and convoluted. While the roles, expectations, and goals of collaborative projects contribute to the complexity of the experience, incorrectly applied terminology adds to the confusion. The terms multidisciplinary, interdisciplinary, and transdisciplinary are often used interchangeably to describe the involvement of multiple disciplines on a given project (Choi & Pak, 2006; Thompson, 1996; Van den Besselaar & Heimeriks, 2001). The ambiguity of these terms creates what Lethard (1994) referred to as a “terminological quagmire.” While institutions of higher education can arguably accomplish integrated learning without establishing a specific practice of multi-, inter-, or trans-disciplinarity, not doing so limits their ability to remain relevant in relation to the greater needs of society.

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### **Exploring Engineering Major Choice and Self-concept through First-Year Surveys**

Darren Maczka, Virginia Tech; Jacob Grohs, Virginia Tech

Choice of major is one of the most important decisions a new student can make in terms of their college experience. Major determines the type of work they will be most engaged in, as well as the departmental culture they will experience, both of which have been shown to impact retention and success (Seymour & Hewitt, 1997). Choice of major is also of interest to diversity and inclusion initiatives that seek to increase representation of women and underrepresented minorities in STEM fields. While Engineering is often treated as a unified field of study in relation to other disciplines such as math, science, and humanities, it is also useful to examine major choice within a broad field such as engineering as there are significant differences in work and disciplinary culture across sub-fields. While a number of factors impact the choice of major before entering college (Carnasciali, Thompson, & Thomas, 2013), we are interested in how that choice changes during a common first-year experience. There has been growing concern regarding the under representation of women in computing fields (Cohon & Aspray, 2008). While there are promising efforts in designing pre-college programs to encourage and empower women to pursue a degree in computing, once arriving at college many still face barriers that may ultimately turn them away from a degree in computing. We are interested in the impact the common-first year experience has on changing one's mind to or from a computing major, either Computer Science or Computer Engineering. In this study, we analyze response data to a survey administered to first-year engineering students three times over the course of the year. Data collected include choice of engineering major at each time point along with items to measure domain identification, engineering utility, and engineering efficacy. We apply logistic regression to determine if end-of-year computing major choice can be predicted by beginning-of-year survey responses. We then discuss interpretation of these results with regards to influence of the first-year experience.

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### **Factors that Impact Sophomore to Junior Retention**

Eric Lovik, Radford University

For many years, researchers and practitioners in higher education have raised concerns about student retention and graduation, and have developed and refined evidence-based theories about student success (Seidman, 2012; Tinto, 1993). Pascarella and Terenzini's (2005) review of the college impact literature identified a number of variables that affect retention and completion. However, much of the postsecondary focus on retention has been on first-year students. The second year of college is a time when continuing students face challenges but do not receive as much attention as they did during the first year. At one university, the sophomore to junior return rate has ranged in the low to mid 90% for fall-to-spring retention and the low to mid 80% for fall-to-fall retention. The researcher analyzed the 5-year population of sophomores based on the end of fall enrollment (2011-15) and whether they returned one year later. Variables grouped in the following categories were entered into a binary logistic regression model to determine statistically significant factors associated with successful sophomore to junior retention as measured by one-year fall-to-fall retention: demographics, pre-college preparation, financial need, academic performance and transition to college, and sense of belonging. Several significant variables emerged from the model: transcript requests, full-time status, academic good standing, lived on campus, unmet need below \$4,200, and the grade in first-year seminar. Practical action steps based on the results of this study include monitoring students' transcript request activities, advertising registration earlier in the term, marketing the value of the degree weeks before the fall and spring breaks, enhancing financial assistance, encouraging more second year students to live on campus, and using exit survey data to better understand the reasons for attrition.

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## **Faculty Experiences on Using Blackboard Analytic Tools**

Stephen Kitoo, Liberty University

Institutions of higher learning are seeking solutions to particularly address declining student retention, which is a result of poor student performance in the classroom. Studies have shown that institutions can track and help struggling students early in the course by using learning analytic tools (Arroway, Morgan, O'Keefe, & Yanosky, 2016; Johnson, Adams, & Cummins, 2012). The use of learning analytics to increase student retention has attracted both praise and criticism. Some of the benefits noted with using learning analytics include the ability to identify struggling students early in the course and give a chance for intervention, and the ability to individualize learning to students (Arnold & Pistilli, 2012). Basing their argument on the self-fulfilling prophecy, critics have noted that using learning analytic tools could lead to professors profiling students according to their abilities (Dietz-Uhler & Hum, 2013). Further, they have argued that access to student information compromises the privacy of students' information (Slade & Prinsloo, 2013). This phenomenological study sought to address the experiences of faculty using learning analytic tools in higher education. The researcher will discuss research design, the findings where three to five faculty members were interviewed, and the implications of these findings to higher education pedagogy.

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## **First Year Experiences Of Male Student-Athletes At A Military College: A Generic Qualitative Study**

Lezshell Pauling, Stratford University

A generic qualitative study was conducted to investigate the experiences of male football and basketball student-athletes entering a military college. In post-secondary institutions in the United States, less than 55% of students graduated after 5 years of enrollment (Desruisseaux, 1998; Gearaghty, 1996). These statistics were alarming because of the linkage to the transition into college, lack of preparedness and loss of motivation to continue their educational pursuit (Monda, Etzel, Shannon, & Wooding, 2015). The intent of this study was to address the gap in literature present in student-athlete experiences at a unique college environment, like a military college. Criterion sampling was used to gain rich data from male football and basketball student-athletes of various ages that could accurately reflect on their experiences attending a military college. Fully structured interviews were conducted on 10 participants. Findings revealed 3 key themes that attributed to the experiences attending their first year at a military college: Theme 1: Academic Self-Efficacy; Theme 2: Social Acceptance; and Theme 3: Emotional Responses. There were also 11 associated patterns to support each key theme. Identifying these themes could be helpful in training staff and personnel to provide additional resources that would better orient future student-athletes to having a successful transition into college.

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## **Flipped Classrooms and Self-Directed Learning: A Chinese/US Comparison**

Janet McNellis, Holy Family University; Donna Rafter, Holy Family University; Kailin Zhou, Holy Family University

Many higher education theorists and researchers have discussed the importance of students becoming more self-directed as learners (Fisher et al., 2001; Grow, 1991; Hendry & Ginns, 2009; Kazemi et al., 2011; Lewis, 2004; Macaskill & Denovan, 2013; Mezirow, 1981). Some research studies suggests that students' levels of self-direction can grow over time (Macaskill & Donovan, 2013; Warring, 2010). However, very few research studies have examine how this can best be accomplished or what effect increases in self-directed learning has on academic performance. Most strategies for increasing students' self-directed learning utilize a "flipped" classroom model. Empirical research on the effectiveness of flipped classrooms is very limited and results are mixed. The results of one recent Chinese study suggest that flipped learning can indeed increase students' course involvement, self-efficacy and self-directed learning (Chyr, W.L., Shen, P.D., Chiang, Y.C., Lin, J.B., & Tsia, C.W., 2017). One U.S. researcher found significantly higher standardized scores for students who received flipped instruction (Janatha, B., 2016). However, the author of another U.S. study, this time involving the use of video lectures to "flip" a biology class, did not find any relationship between self-directed learning and academic achievement (Sletton, S., 2017). Our research study employs a mixed-methods approach to analyze the effectiveness of the flipped classroom on student learning and growth as self-directed learners in Chinese and US college students. Differences between undergraduate and graduate students and between online vs. F2F classes are also examined. This study identifies factors that contribute to beneficial flipped classrooms and the results can provide university faculty and administrators with theoretical and practical guidance.

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## **Gamification and Online Education: A Systematic Review**

Xuqing Wang, Virginia Tech; Diana Wu, Virginia Tech

Many research indicate learner control (Chou & Liu, 2005) and motivation (Keller & Suzuki, 2004) are essential elements of online education. Gamification as a burgeoning pedagogy is a way to increase students' motivation, especially in online education. The points and different types of rewards in the gamified learning module reinforce and shape the students' learning performance. The purpose of this study is to understand the gamification elements influencing student's engagement and motivation in online courses. A systematic literature review will be conducted in this study. First, the researchers will select two education electronic databases, APAPsycNET and EBSCOhost. The terms, "gamification\*", "game-based mechanics", "badges", "leaderboards", "points", "progress bar", will be used to collect the peer-reviewed journals published from 2007 to 2017. The final data collection will only include empirical studies about the effects of gamification on learner's engagement and motivation in online education. Cluster analysis will be used for the data analysis. This poster presentation will be in three-fold: 1) we will present design, functions, and usage of different types of game-based mechanics practiced in online education 2) discuss influences of gamification on the student's engagement and motivation, and 3) recommend the effective use of different types of gamified mechanics in online educational settings.

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## **Gender Neutral: A Challenge for Students of Bathroom Design**

Kathleen Parrott, Virginia Tech

Issues of gender identification have captured considerable public attention, leading to controversy and debate on the use of bathrooms (see, for example: Haslam, 2016; Scherer, 2016). The gender debate questions how, and with whom, we share private and intimate bathroom spaces, and becomes a critical concern for bathroom designers. Students (n=15) in an advanced residential design class were challenged to design a gender neutral bathroom to be shared by 40-45 college students in a renovated dormitory. As part of the assignment, the design students developed definitions of privacy and gender neutrality as relevant to bathroom design and use. Two concepts emerged as critical in designing for privacy: 1) comfort in performing activities, and 2) power to control the environment. Designing for gender neutrality was defined by students as removing the stigma or specificity of gender definition in the designed spaces. The students worked with a specific design program for the bathroom, including minimum numbers of each type of fixture and accessibility requirements. In their final designs, students focused on appropriate and supportive design for the three primary bathroom activities: 1) bathing and/or showering; 2) elimination (toileting); and 3) personal grooming (including face washing, shaving, teeth brushing, and applying make-up). Different configurations of fixtures provided choices in the levels of visual and auditory privacy for each of these activities. By providing a choice in level of privacy, each user could have power to control their environmental privacy, and hopefully maintain their comfort level in a gender neutral bathroom. Students participating in this project gained experience in handling sensitive issues when designing bathrooms as well as broadening their understanding of privacy issues in bathroom spaces. The poster presentation will include selected samples of student design solutions.

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## **Integrating Technology Effectively**

Ralph Menard, Mercer University

The current literature shows that there are many benefits of utilizing pedagogical technology. However, there are potential pitfalls when the media is not being employed properly. This presentation will highlight the benefits, pitfalls, and opportunities to harness the true potential of embracing technology in the classroom. The information included in the presentation comes from a thorough literature review and will compare strengths and weaknesses of technology in the classroom, answer how effective safeguards can be used to mitigate some of the weaknesses, and address whether technology in the classroom should be optional or required.

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## **Integrating Wellness into the Classroom to Increase Professional Longevity**

Kevin Doyle, Virginia Tech; Karen Raymond, Virginia Tech

Wellness has been defined as the optimization and integration of emotional, spiritual, physical, and social well being (Myers, 1991). Within human services fields, wellness has been situated as a primary intervention in preventing workplace fatigue, impairment, and burnout from typical workplace stressors (Lawson, Venart, Hazler, & Kottler, 2007). Further, modeling and direct instruction of appropriate wellness behaviors by teachers and educators and been identified as having the potential help promote wellness amongst the students whom they teach (Yager & Tovar-Blank, 2007), a position that is supported by Social Learning Theory (Bandura, 1977). Additionally, it has been shown that through direct instruction and education of positive wellness practices, pre-service educators felt more confident in both teaching and promoting wellness behaviors in their students (Yager, 2011). In this poster presentation, the presenters will provide contemporary definitions of holistic wellness, and the factors that contribute to personal wellness, including creative, coping, social, physical, and cultural aspects (Myers & Sweeney, 2004). Using these contemporary models, the presenters will identify strategies to promote, develop, and educate students regarding these aspects and how to integrate them into daily practice through course structure, student assignments, and classroom discussion. This presentation will highlight ways to not only prepare the students for the academic rigors of professional practice in which they engage post-graduation, but also how to maintain effective habits that can to support them in their careers and prevent the negative consequences of burnout.

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## **Investigating the impact of makerspaces on art education in higher education**

Jeeyoung Chun, Virginia Tech; Kihyun Nam, University of Georgia

Makerspaces refer to an extremely wide variety of creative endeavors, tools, demographics, and types of places where making happens. Makerspaces provide students with useful learning experience in higher education. They encourage creativity, imagination, and enthusiasm by providing participants the opportunity to use multiple intelligences. Makerspaces offer students a place to think about how to use technologies as well as to find other remarkable methods of art making procedures in art education. Technologies also provide new ways to produce great artifacts. The purpose of this study is to investigate undergraduate students' opinions about using makerspace technologies such as electronic kits and photo editing programs in art creation. Participants will answer open-ended questions regarding the contents of the art course in the interview. Expected results from participants are that they will be satisfied with makerspace activities using technologies for creating artifacts on art education in the university class.

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## **Life-Long Learning in Apparel – Wear-able Technology**

Peggy Quesenberry, Virginia Tech; Doris Kincade, Virginia Tech

Apparel construction is often thought a one-off study in which students learn to sew pieces of fabric together correctly in formation of a specific end product such as a garment, quilt or other fabric item and move onto another class. The larger picture is this field of study is rapidly becoming one of the more technology enhanced, and future and current employees need to learn continually to remain competitive throughout their fashion careers. Smart textiles and wear-able apparel products present new challenges both in construction and design of these garments (Stoppa & Chiolerio, 2014). Wearers want the best that technology offers, those that help make this happen are in fact, life-long learners merely to keep abreast of how to handle and better create the best garment for the intended function. Striving to move beyond needs already identified, there are increasingly those that are quickly arising as the population lives longer and is more physically active during their life span. The market for Wearable Textiles is projected to grow from the current \$20+ billion per year to over \$70 per year by 2025 (Ruppert-Stroescu & Balasubramanian, 2017). Considering Dewey's (1916) enthusiasm and guidance on life-long learning, one would expect to find former apparel workers open to retraining. The proposed jobs in wear-able technology have an expectation of wages well-above minimum wage. However, a survey of 20 former apparel workers indicated a definite lack of interest in pursuing retraining even when, or because, the field was related to new technologies. Workers were asked if they would retrain if given funding for tuition and other financial support and the answer was still "no." Further exploration is needed to understand this lack of interest and ways to promote and engage these former workers in life-long education.

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### **Living-Learning Communities: Building Emotional and Cross-Cultural Resilience for U.S.-born, International-born and DACA Multicultural Students**

Diana Rios, University of Connecticut; Graciela Quiñones-Rodriguez, University of Connecticut; Luis Loza, University of Connecticut

La Comunidad Intelectual (LCI) is the first living-learning community of its kind at the state's flagship. It supports diverse students for success at a top public research university. LCI leadership and Concilio student leaders plan core cultural, and professional activities yearly to support the emerging intellectual. Because of escalating anti-immigrant, anti-ethnic/racial political environments, LCI leaders and on-campus educational partners, are refining their strategies. Plans are to reinforce safe and inclusive learning environments; cultivate spaces and opportunities for personal, academic and emotional growth, and cross-cultural resilience. Self-care and growth strategies are especially important for DACA (Deferred Action for Childhood Arrivals) students and their interpersonal systems because of constrained mobilities and civil rights. Using select research literature on residential learning communities and the RLM (Residential Learning Community Model), cross-cultural adjustment, trend data on underrepresented students, biography-of-work techniques (by co-directors and founders, student leaders), archive note materials, we will: •highlight promising practices for supporting diverse students in residential learning communities (U.S. Department of Education, 2016; Supiano, 2015; Smith et al, 2004; •review Residential Learning Model (University Residential Life, 2017) and describe the strengths and limits of such models (Kerr and Tweedy, 2006; Kerr et al, 2017; Blimling, 2015); •illustrate cross-cultural adjustment processes (Sobre-Denton and Hart, 2008; Sam and Berry, 2010); •examine data trends on underrepresented students in higher education: U.S.-born, foreign-born multicultural students, first to attend college (U.S. Department of Education, 2016); •describe national college mental health trends plus anxiety/uncertainty management (Novotney, 2014; Gudykunst, 1998; 2005); •review elements of college counseling services as support resources integrated in learning community programming to ensure students mindfully thrive (Zamudio-Suaréz, 2017); •envision how this learning community will strongly advance during the next five years, based on planning, student volition, and politico-economic realities in the state, nation and globe.

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### **Lowering Barriers to Student Success: Metacognitive Development in a Flipped Foundational STEM Course**

Joe Wirgau, Radford University; Jessica Mundy, Radford University

The flipped model class delivers content outside of class time, typically through video and leaves class time for active learning, concept application, and team activities. While there are benefits to flipping a class, there are also obstacles, including technology implementation and time barriers. Another sometimes overlooked barrier is the mindset and previous educational experiences a student brings to the classroom. Fostering a growth mindset and developing metacognitive skills over the course of a single class is a true challenge that requires intentional course design. This work represents three years of such course design, implementation, and assessment of student success. We have moved our STEM class away from the default lecture where too much information is covered with little application or practice. Shifting the focus of our classroom to the students for more experiential and collaborative learning and promoting the development of broadly applicable skills. However, even in an active classroom with student support and accountability, the students may still not succeed due to poor metacognitive skills. Many students have never been introduced to metacognition and do not possess the skills to study and learn effectively and rely on memorization. Three years ago we flipped a general chemistry course and used technology to guide the in-class learning. We refined the classroom management in year 2, including the removal of technology in the classroom and added a metacognitive intervention after the first test. In year 3 we have been able to collect longitudinal data and expand upon the metacognitive intervention. We will present the impact of course design and student mindset on student achievement, grades, and success in subsequent courses.

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### **Meeting Students' Basic Needs to Make Diverse College Classrooms (including online classrooms) Exceptional Learning Environments**

Karen Woodring, Harrisburg Area Community College

Teaching at a community college (mostly online) for the last ten years, I've had students who represent the true variety of people found throughout the world. The only thing that these students share is that they're enrolled in my class for the semester and most have the desire to succeed. Within that classroom, though, I suddenly have students interacting who would not interact with one another outside of the classroom. In today's push for more inclusion and diversity, my virtual classroom demonstrates race, gender, ethnic, and economic diversity, but also one where disabilities, social status, and life issues (which may include obstacles such as

homelessness, abuse, addiction, caring for parents or children, mental health issues, veterans adjusting to civilian life, and much more) are being brought to class. College needs to be an environment where these students have the support they need to persist through these problems, but also allow all students to have the safe environment they need. The syllabus is the students' first glance into what a class will "do" for them, and including information about safety, food security, counseling, and other forms of assistance is the first step toward building a healthy, respectful classroom where all students can exercise free speech, discuss difficult historical or current events, and also exercise respect for each other's backgrounds, beliefs, and priorities. The conversation will discuss "best practices" to make sure that our inclusion is intentional and thorough for all groups attendees serve.

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### **Online Learning and Gender Differences in the Perception of Engagement and Instructor Presence**

Kizito Mukuni, Virginia Tech; Xuqing Wang, Virginia Tech; Oscar J. Solis, Virginia Tech; Wejdan Almunive, Virginia Tech

This quantitative study investigated the differences between female and male students' perceptions of instructor presence in an online course and how it influences their engagement in the course. A causal-comparative design was adopted for this study because the goal of the research was to determine relationships between the dependent variable and independent variables. While researchers have produced a large body of literature investigating the factors influencing student engagement in online courses, there is far less literature concentrating on the differences between male and female students' perceptions of instructor presence. This study addressed this gap by exploring the differences between male and female undergraduate students' perceptions of instructor presence at a large land-grant institution in the southeastern United States. The participants included undergraduate students from four online courses within an academic college that encompasses the arts, humanities, and social and human sciences. A t-test was conducted on the instructor presence score to find the answers of the research questions. The outcomes of this study showed that there are differences between males and females regarding their perceptions of instructor presence and its impact on their engagement. Furthermore, female students consider instructor presence a crucial factor contributing to their engagement in online courses.

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### **Online students apply the process of design thinking to solve issues of social crisis using virtual collaboration tools in MURAL.**

Kristin Machac, Radford University

Corporate businesses and higher education are continually looking for opportunities to promote change and transform issues of social crisis, nationally and internationally. Graduate students in an online, five-week, Social Entrepreneurship course set out to identify instances of social crisis and opportunities to solve them. Collectively, students used MURAL to research problems, implement design thinking methods, generate lots of ideas, prototype solutions, gather feedback, and iterate to new solutions. Virtual collaboration is commonly viewed as a challenge. This demonstration will highlight the ways in which our students breakdown barriers of distance, and showcase the advantages of collaborating in a virtual environment versus face-to-face. We'll share examples of MURAL boards that document the entire process of design thinking from start to finish. Measurable Impact: Our students are paving the way for the future of virtual collaboration. They not only embrace it, they prefer it, and here's why: Keep the momentum. Innovation doesn't stop after a workshop or a meeting. In a virtual environment, the conversation continues, synchronously and asynchronously. Storage of artifacts. There's no need to fill your camera with images of whiteboards and flip charts after a workshop. Instead, all the work is neatly stored, online, for you to reference at any time. Transparency. Not only can your group access artifacts and working files at any time, but they're easily shared with others who may be new to the team, gathering information or supervising a project. Accessibility. You're no longer limited to teams of people located near you. You can work with anyone, anywhere.

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### **Pedagogical Content Knowledge in Healthcare Education**

Ellen Payne, Radford University; Emily Hildebrand, Towson University

The concept of pedagogical content knowledge (PCK) was designed for K-12 teachers and later adopted in higher education. Shulman's model of teacher knowledge has three separate components: subject matter content knowledge, pedagogical content knowledge, and curricular knowledge. Subject matter content knowledge for teaching goes beyond knowing facts and concepts; it

involves knowing the field in its entirety. PCK involves using various instructional methods common in the field, factoring in backgrounds and previous experiences of students, assessing the classroom environment, and understanding what makes certain concepts easier or more difficult to learn. PCK has been researched and applied in athletic training, nursing, medicine, and other allied healthcare fields. In healthcare education, many faculty members do not have formal training in education or pedagogy and are hired based on their clinical experiences. It is important for educators that are strong clinicians to consider not only their content knowledge, but to expand their pedagogical knowledge since a link between student learning and PCK has been demonstrated. Continued investigation of the role of PCK in healthcare is warranted, as is training for new faculty to complement their clinical knowledge and promote a potential for enhanced learning experiences. This poster will provide practical teaching strategies, based on the theory of PCK, for healthcare educators to incorporate into their teaching.

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### **Peer Mentoring Program: A Pilot Study**

Ellen Payne, Radford University; Kathleen Poole, Radford University; Jon Poole, Radford University

A Peer Mentoring Program (PMP) was piloted during the Spring Semester 2017 in an effort to improve the retention and transition of freshmen. The transition from high school to college is understandably a dramatic event in the lives of young people and the use of both formal and informal peer mentoring programs to ease that transition has a long history in higher education. The PMP matched senior/junior-level mentors (n = 10) with freshman mentees (n = 10) for a semester. Both structured and unstructured meetings between the mentors and mentees occurred over the course of the semester. After completion, participants assessed the program via short, online surveys. Mentors (n = 6) reported enhanced leadership and interpersonal skills (6/6 = agree or strongly agree). Mentees (n = 5) reported that the program provided a positive transition from high school to college (4/5 = agree or strongly agree) and valuable professional information related to the major/concentration (4/5 = agree or strongly agree). Overall, the PMP was positive experience for both participants and faculty involved. Participants reported in open-ended survey questions that they felt the program would have been more successful with a full year implementation.

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### **Personality Trait Differences by Academic Major: Implications for Student Success**

Brittany Mazur, Mount Aloysius College; Mary Shuttlesworth, Mount Aloysius College; Emily Gardner

Personality traits may be an important consideration in college major selection, as different academic areas may emphasize certain personality traits (Smart, Feldman, & Ethington, 2000). For students, the match between major and personality may have significant implications, including higher GPA (Tracy & Robbins, 2006), greater persistence through the major (Allen & Robbins, 2008), and higher likelihood of graduating on time (Allen & Robbins, 2010). By understanding the personality traits that characterize disciplines, students may be guided to majors that match their personalities. Undergraduate students (n = 419) from 3 academic major areas (Social Sciences [SS], Allied Health & Sciences [AHS], Business [BU]) indicated major and completed the Big Five Inventory (John, Donahue & Kentle, 1991) to measure personality traits (openness, conscientiousness, agreeableness, neuroticism, extraversion). The 3 (major) x 5 (personality traits) one-way ANOVA showed significant differences between majors on openness, conscientiousness, agreeableness and neuroticism. AHS students scored higher than SS students on conscientiousness and agreeableness and lower than BU students on openness. SS students scored higher than BU students on neuroticism. Findings may indicate that students with similar personality traits are attracted to majors where their traits are optimally maximized. This information may be particularly relevant to students who are undecided to highlight major options that complement personality traits.

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### **Podcasting in the Classroom: An Interdisciplinary Audio Project**

K. Westmoreland Bowers, Radford University

As higher education continues to adjust to the ever-changing skillset of students, more and more is being done to harness the skills of digital natives. In order to appeal to the modern student, instructors must reach across generational gaps to meet students' understanding of modern media and then capitalize on the skills they have developed growing up in a digital world. Allowing students to use their knowledge of and preferences for more modern platforms than traditional papers and exams gives them the opportunity to express their understanding in ways that are more in line with their expectations of digital culture (McArthur 2009). The use of podcasting, with the boost of its popularity in recent years (Smith 2016), provides an entry point for many students who

have turned away from more traditional forms of media to those that appeal more to their aural and visual senses. Students may feel more comfortable presenting information in a format more like the ones they consistently interact with. They may also find more community members or potential employers willing to engage with them on topics presented in more modern and easily consumed formats. Looking to take advantage of interest in the podcasting format, a graduate communication course in Strategic Video Production partnered with a Policy Analysis course in criminal justice to create podcast episodes relating to criminal justice policy content. Students worked together on all aspects of the podcast, with the criminal justice students focused on information and content and communication students focused on technical aspects and structure. Following constructivist objectives, students built the podcasts from the ground up learning important concepts regarding relaying information to a broad audience, interviewing techniques, and audio production skills.

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### **POP! Goes the Pedagogy: Using Popular Culture in the Classroom to Demonstrate Theoretical Constructs for Nonmajors & Majors**

Mary Helen Millham, University of New Haven; Diana Rios, University of Connecticut

Communication is one of the most required skills in today's job market, regardless of the industry. Researchers have reported that employers perceive a need to improve the communication skills of their recently graduated employees (Stevens, 2005). A broad, overarching introductory Communication course is often the only exposure to the field of Communication for non-majors, most of whom only take the course because it is a core requirement. The challenge for Communication instructors then, is how to reach these students and motivate their participation in class. One such way to accomplish this is to show them how much communication is already a part of their lives with examples drawn from the media with which they interact everyday: Popular Culture. As Bloch (2011) points out, while television shows are primarily designed for entertainment purposes, a curated playlist can be deployed "as an effective teaching solution [to] get students' attention and stimulate discussion, leading to practical instruction" (p. 7). In this way, students are shown the arbitrariness of language by watching Disney's *The Little Mermaid's* Scuttle describing a pipe as a "bulbous, banded snarfblatt" and a fork is no longer an eating utensil, but a type of a comb called a "dinglehopper." Similarly, the concept of proxemics and personal space are illustrated via a two-minute *Seinfeld* clip featuring a "bit of a close talker." Examples of best practices will be shown, drawn from past and current teaching experiences with undergraduate students from a cross-section of majors at both a large public university and a smaller, private institution.

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### **Psychosocial Factors and the Effects on Retention with Females in a Health Sciences Program**

Yolanda Savoy, Stratford University

The problem in the proposed study is a for-profit private institution located in the Southeastern United States in the year 2015-2016, 25% or 35 of the 142 students who withdrew from the university were from the School of Health Sciences. The goal of the university is 100% retention rate for all students. Of the 35 students, 34 students are female students. In addition, 62% of the students in the School of Health Sciences are African Americans between the ages of 20-34. The purpose of the study is to investigate the psychosocial factors that influence retention in female students enrolled in the School of Health Sciences online degree programs (programs with totally online and hybrid or blended courses). Examples of the factors include social support, stress, program satisfaction, self-directed learning, course flexibility, course convenience, finances, academic self-efficacy, and faculty-student interactions (Krumrei, Newton, Kim, & Wilcox, 2013; Rousseau, 2012). Consideration of psychosocial factors may influence the faculty and school administrators in the development of programs and support services that are necessary for females in health sciences programs to be successful in an online learning environment. The generic research design for the four research questions is the embedded mixed methods design with specific designs for each research question (Creswell, 2012; Creswell & Plano-Clark, 2011). The specific designs to guide data collection and data analysis are descriptive-survey (Quantitative Research Questions 1 and 2) and descriptive-interview (Qualitative Research Question 3) designs. Participants in the quantitative part of the study will be 62 female undergraduate and graduate students enrolled in online degree programs, participants in qualitative part of the study will be five faculty who teach ...

## **Regulating Emotion in the Higher Education Classroom: Seeking Proximity to a Divine Attachment Figure**

Anita Knight, Ph.D., Liberty University; Kelly Carapezza, M.A., Liberty University; Keaghan Macon, M.S., Liberty University; Patrice Parkinson, Liberty University; Yaa Tiwaa Offei Darko, Liberty University

Anxiety has been reported as an increasing mental health issue for students in the higher education classroom (Bonfiglio, 2015). Existing research suggests that seeking proximity to an attachment figure may regulate anxiety (Cassidy, 2015). When attachment figures may be unavailable, representations of the attachment figures can serve the regulatory function. A Divine Attachment Figure (DAF; Counted, 2016), for example God, is often portrayed (from the Judeo-Christian worldview) as always being available. Kiesling (2011) examined the divine attachment hypotheses in God attachment literature. Kirkpatrick and Granqvist (2014) assert two pathways to attachment to God. The correlational hypothesis acknowledges the role of social learning in attachment, and if a child grows up with a sensitive caregiver researchers have found this internal working model may be transferred onto God (Kirkpatrick, 1999; Granqvist, 2005). On the other hand, the compensation hypothesis indicates that some may attach to God in a different manner and experience a relationship with God that could help compensate for a painful experience from childhood, in other words relationship with God could help strengthen coping. This is consistent with what Bob Marvin discusses in his educational videos and work from the circle of security which indicates that one's attachment style is not determined by past experience, but it can adapt and change. This research explores interventions designed to explore how strengthening relationship with God may influence attachment security. This study furthers existing research to examine the efficacy of a workshop designed to facilitate proximity seeking to a DAF in a Judeo-Christian population of graduate students at a central VA University. A second purpose is to examine the relationship between anxiety, mindfulness, and God-attachment in the same population and present possible implications for higher education. To accomplish these goals, the God attachment of a university population was assessed before and after a God attachment workshop using contemplative prayer and mindfulness-based interventions designed to reduce anxiety in university students and build healthy attachment-based relationships with their professors (Garzon, Hall & Ripley, 2014). Attachment to a divine figure will be assessed pre and post using the God Attachment Inventory (Beck and McDonald, 2004) and the Beck Anxiety Inventory (Beck and Steer, 1993). Statistical analysis will be conducted in the form of paired samples t-tests using Statistical Package for the Social Sciences (SPSS). Results are discussed in light of future implications for higher education, and resources are provided for anxiety-reducing exercises that can be used in a workshop format or the classroom.

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## **Rethinking course design and assessment from a student perspective**

Susan Weaver, University of the Cumberlands

When we talk about strategies for engaging students or ways of assessing, it is easy to overlook how this translates into the student experience. Do assessments cost opportunities for learning? Do efforts to engage students in collaboration result in alienating introverts? Are absolute deadlines fair? The goal of this poster is to highlight a course designs that counters a students' desire to opt out of learning by designing a course from a student's perspective. Student response to Implementation in intro sociology, research methods, and diversity and ethics online courses are used for examples, but the strategies would work in a face to face class, too. The key strategy is to increase reflection and opportunities for success by developing courses that consider the impact of activity and assessment on the student's self-image. This is especially important for students who might not feel that they are entitled to a seat at the table due to past experiences, shyness, poor preparation, limited English proficiency, kinesthetic learning preferences, learning issues, or effects of economic and social inequality. Students take ownership that enables them to move forward with confidence when materials and assessment are student friendly. Costable et al. (2013) found that allowing students to develop self-efficacy and self-regulatory skills is beneficial for enhancing commitment to education. Further support for a well-designed effort is provided by Bayer et al. (2012) in their success enhancing the social behavior of students to increase college success. Mattison (2013) used snowball sampling to identify forty respondents who described their reason for dropping out as lack of funding, lack of motivation, and inability to overcome obstacles. Gearson (2014) asserts that connection can be achieved through strategic use of high impact practices identified by Indiana University. These high impact strategies are the basis for the approach advocated in this poster.

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## **Rubric Development for Formative Assessment**

Chelsea Lyles, Virginia Tech; Tracey Drowne, Virginia Tech; Jeananne Knies, Virginia Tech

The National Association of Colleges and Employers (NACE) defines career readiness as, "the attainment and demonstration of requisite competencies that proudly prepare college graduates for a successful transition into the workplace" (2017). NACE has

identified the competencies most in demand by employers: critical thinking/problem solving, oral/written communications, teamwork/collaboration, digital technology, leadership, professionalism/work ethic, career management, and global/intercultural fluency. How can academic and career advisors help undergraduates demonstrate development of the professional competencies that employers are seeking? Panadero and Jonsson (2013) found that rubric use clarifies expectations for students and decreases anxiety. The purpose of this project is to develop a rubric utilizing NACE career readiness competencies, grounded in literature, to measure a student's ability to communicate in writing the transferable skills gained through previous work, volunteer, co-curricular, and course work experience

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### **Self-Reported Learning Gains in a Diversity Intensive Course**

Melissa Smith, University of North Carolina at Asheville

While some researchers question whether undergraduates are able to provide accurate self-reported learning gains (SRLG; Bowman, 2011), faculty find use in assessing SRLG to evaluate innovative course designs (e.g., Levesque-Bristol & Stanek, 2009; Stansbury & Earnest, 2017). Elicker, Snell, and O'Malley (2010) examined SRLG in a diversity focused Introductory Psychology course and found that perceptions of multicultural emphasis were positively associated with understanding of course concepts. These investigations evaluated specific course pedagogies, which Porter (2013) suggests is one condition under which SRLG are likely to be valid. In the present study, the impact of an additional hour per week of class time on students' SRLG was examined. The investigator taught a diversity intensive Developmental Psychology course in both 3- and 4-credit hour formats, providing an opportunity for SRLG comparison between the two class types. Although one of Chickering and Gamson's (1987) principles of effective teaching practice is the emphasis of "time on task," surprisingly little research has tested this idea. Based on learning principles suggesting that more class time allows students increased opportunities for distributed practice (e.g., Kang, 2016), it is hypothesized that students in the 4-hour format, which incorporates an applied learning project, will demonstrate increased SRLG and class satisfaction. Students from each class type will be evaluated after their final exams; the 3-hour cohort (n=39) was previously assessed and the 4-hour cohort (n=62) will be assessed in December. The evaluation instrument requests students to rate (a) current feelings about the course, (b) perceived gains in achieving diversity intensive learning outcomes, and (c) perceived motivation for learning and ability to apply course material.

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### **Service-learning in a community nutrition course: Influence of site on student perceptions**

Georgianna Mann, The University of Mississippi; Sarah Misyak, Virginia Tech

Service-learning has been used successfully in college courses at the undergraduate level to increase feelings of community connectedness, broaden student perspectives and provide opportunities for soft skill development. The goal of this evaluation was to determine perceived development of soft skills and perceived benefits of a service learning experience in a Community Nutrition course at a southern university. Students were assigned to community sites based on ranked preferences to complete a 15 hour service learning requirement. Sites types included food provisions (food pantries and pre-packed food assistance programs), education (school-based, community level efforts, campus education, and health events) and local food (farmers' markets, farms and sustainability efforts). Student perceptions were evaluated based on a 16-item survey with Likert scale responses given both before and after the completion of the required 15 hours. Responses were tested for significant differences using paired Student's t-tests and differences based on site type were determined by ANOVA (alpha. . . .

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### **Shadow Modules: Engaging students as partners through student-led collaborative learning communities**

Stephen Rutherford, Cardiff University; Sheila Amici-Dargan, Cardiff University

Engaging students as active partners in, rather than as passive consumers of, education is a key priority for contemporary Higher Education. Working in partnership with students provides the potential for a beneficial impact on both student learning and curriculum development. We have been pioneering an approach we term 'Shadow Modules' - student-led, student-focused, physical and online collaborative learning communities which parallel taught modules in order to support student learning. Shadow Modules utilise the concept of collaborative learning, in which learners work together to co-create a shared understanding of a subject. Shadow Module activities are coordinated by a student volunteer, who liaises with the academic leading the taught module. Shadow Module formats are typically either collaborative study groups, peer-taught or peer-facilitated study sessions, or online discussion

communities. Then more-effective Shadow Modules being a combination of these. Participants identify or create learning resources, and then, using Web 2.0 collaborative technologies, share them with the rest of the module cohort. By sharing outputs with both participant and non-participant peers, the outputs of the study groups have a broader and longer-lasting impact. The close interaction of the Shadow Module Leader also facilitates direct feedback from students into the curriculum design and delivery, thus making an active partnership between academics and students. This poster evaluates the pedagogic impact of Shadow modules on stakeholders. Qualitative analysis of student perceptions reveal that students find Shadow Modules make studying more efficient, and foster engagement, confidence and a sense of community. The impact on the confidence and learning development of the 'Shadow Module Leader' is also considerable and multi-faceted. Finally, impact on the module staff is significant and can have long-term positive consequences. This model of students as partners in learning has the potential to empower students, provide them with enhanced learning opportunities, and enrich the curriculum.

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### **Storytelling Through the Four C's in the Classroom: Strategies for Critical Thinking, Communication, Collaboration, and Creativity across the Curriculum**

Denise Wilkinson, Virginia Wesleyan University; Kathy Stolley, Virginia Wesleyan University; Robin Takacs, Virginia Wesleyan University; Rebecca Hooker, Virginia Wesleyan University

The four C's - critical thinking, communication, collaboration, and creativity - have been promoted by the National Education Association as important skills to prepare students for the 21st century. But how can we best meet the pedagogical challenge of teaching these skills across the curriculum? At Virginia Wesleyan University, our in-house faculty development "Talk About Teaching" (TAT) series sponsored by the Center for Innovative Teaching and Engaged Learning has approached this challenge through integrating the four C's with a storytelling theme. This poster will focus on four sessions that have been presented in this year-long TAT theme. The role-playing "Reacting to the Past" activity uses stories of the past to teach critical thinking skills that inform the present and position for the future. "Understanding the Concept of Slopes through Storytelling" engages collaborative communication skills while enhancing math students' understanding of a mathematical concept with relatable and applicable examples. "Communicating Your Story with E-portfolios" incorporates service-learning and reflection with an approach that helps students effectively communicate their own stories by publishing artifacts that demonstrate their accomplishments, skills, and abilities to graduate schools and prospective employers. Illuminating social conventions that shape conventionality provides the context for "Promoting Creativity in Small Groups," and helps students incorporate creative thinking into their own narratives. Including the four C's storytelling theme into the "Talk About Teaching" series provides a venue for discussion and strengthening effective teaching skills on topics related to the four C's. Faculty have the opportunity to share "best practices" in teaching communication, critical thinking, collaboration, and creativity with techniques that span disciplines. The multi-disciplinary emphasis and use of in-house session leaders (combined with plenty of pizza and snacks for participants) builds community through faculty collaboration, and encourages faculty to expand and explore their own skill sets and enrich their own faculty storylines.

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### **Stress, Coping, and Self-efficacy of College Students in Two Cultures**

Dean Owen, Middle East Technical University; Lola Aagaard, Morehead State University; Ronald Skidmore, Morehead State University

Colleges and universities traditionally value their students' cognitive factors (academic skill and learning), but noncognitive factors, including how students cope with stress, are also related to student success and retention (Roos, 2012). Students can be stressed by (among other things) their coursework, financial situation, fear of failure, and social relationships (Kreig, 2013; Robotham & Julian, 2006). Stress at high levels is associated with lower self-efficacy (Anand & Devi, 2012), decreased satisfaction with college (Kreig, 2013; Lee & Jang, 2015), as well as problems managing alcohol consumption and internet use, and disordered eating (Tavolacci, 2013). Better academic teaching strategies are important, but they do not address the causes and management of student stress, which are crucial to college success. A first step is to identify what stressors college students perceive and how they are dealing with them. To this end, three instruments were administered to 226 undergraduate students (48 male, 178 female) divided between Kentucky and North Cyprus (Turkey): 1) Self-Efficacy Scale (SES) (Owen, 2007, Korkut-Owen, Owen, & Karaimak, 2013); 2) Negative Event (Hassles) Scale for University Students (Maybery, 2013); and 3) Brief COPE (Carver, 1997). Students from both cultures identified their courses, money issues, and problems with friends as three of their top five stressors. In general, the research participants coped with their stress in a healthy way, with both groups' top strategies including active coping, self-distraction, reframing, planning, and acceptance. Across both groups the Pearson's correlation between total score on the Negative Event Scale

(the stress measure) and general self-efficacy was -0.227. Knowing what stresses students and how they typically deal with that stress can assist faculty and staff of colleges and universities in integrating helpful information into institutional programming and classroom discussions. Doing so could help students be more successful academically during their time in higher education.

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### **Stressors and coping mechanisms of medical students**

Mariah Rudd, Virginia Tech Carilion School of Medicine; Tracey Criss, Virginia Tech Carilion School of Medicine; Daniel Harrington, Virginia Tech Carilion School of Medicine; David Musick, Virginia Tech Carilion School of Medicine; Brock Mutcherson, Virginia Tech Carilion School of Medicine; Aubrey Knight, Virginia Tech Carilion School of Medicine

Background: Research has documented significant levels of psychological distress and burnout in medical students. Some research has found that medical school can erode the students' natural resilience to stress. At the same time, the project will identify self-reported coping mechanisms, compare them with the stressors and determine how the medical students are effectively and ineffectively caring for themselves and present opportunities for the students, faculty and staff to provide timely and critical interventions. Methods: A two-part survey was administered to students in early 2016. Students were provided with an informed consent form prior to taking. Data was handled by an honest broker and was de-identified prior to being provided to investigators. Qualitative themes were derived from the open ended response question. Item means were compared using the T-test procedure, with a significance level of  $p=.05$ . For the purpose of analysis, M1 and M2 student responses were combined and M3 and M4 student responses were combined. Results: A total of 94 Virginia Tech Carilion School of Medicine students completed the survey in 2016. Statistically significant changes were identified for two items. For all four years, a majority of students responded "very often" when asked "How often have you felt confident about your ability to handle your personal problems?". Themes identified for the three events/experiences that have caused stress for medical students include: research; personal/family; step exams; block exams; and residency/match. New data for this past academic year (2017) has been collected and the study team is in the process of analyzing new findings. Discussion/Conclusion: Using an survey comprised of validated instruments to measure stress and coping the authors were able to identify medical students' key stress experiences and identify the key positive coping mechanisms they utilize. For this longitudinal study, the same survey tool will be given electronically to all medical students in the following years (2017, 2018, and 2019). Ultimately, these findings will be used to educate students on positive coping mechanisms that have been found to be effective.

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### **Student Experiential Learning Simulation Project for an International Agricultural Trade Course**

Baohui Song, California State University at Chico; Mary A. Marchant, Virginia Tech; Mina Hejazi, Virginia Tech

The National Food and Agribusiness Management Education Commission (NFAMEC) examined U.S. agribusiness degree programs and found that "the international dimensions of finance, management, marketing, policy, trade, or similar topics" are not offered in typical course curricula. However, they stated that it is important to include courses that focus on "the international dimensions of public policy, international trade, finance, marketing, and strategy, all as they relate to the food and agribusiness managers." Our research presents a student experiential learning simulation project for international agricultural trade courses to meet this need. The goal is to expose students to the theories of international trade and the important practical skills for international business trade, introducing students to international trade terms; international transportation and shipping documents; marine insurance for international trade; international negotiations and sales contracts; international payments and letters of credit as well as the operational procedures for international agricultural trade. Upon completion, students will gain practical skills that will enhance their job opportunities in international marketing and trade.

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### **Student Perceptions and Achievement in a First Year Natural Resources Class**

Dean Stauffer, Virginia Tech; Jennifer Culhane; Jennifer Culhane, Virginia Tech; Kiri Goldbeck DeBose, Virginia Tech; Don Orth, Virginia Tech

We developed a course designed to address the needs of students transitioning from high school to college under the Virginia Tech First Year Experience program. The intent is provide students with the tools necessary to engage in substantive exploration and

discovery of themselves and the world around them. The course focuses on lifelong learning skills such as problem solving, inquiry, and the integration of knowledge. We conducted a survey of the first 5 cohorts of students from this class to assess their perceptions of class components. We report on their perceptions and also on their performance on information literacy tests. Each cohort showed substantial improvement in information literacy as reflected in pre- and post-tests administered at the beginning and end of the semester. Post-test scores increased an average of 16.8% (11.9 percentage points,  $P < 0.0001$  in all cohorts, paired t-test). We administered a survey with 10 questions asking students to evaluate their perception of various aspects of the class on a 5-point Likert scale. The response rate was 24.5% (81 of 331 students). Students (75%) reported that the course assignment to develop a technical briefing helped them in subsequent classes and 69% believed that the information-literacy content was useful. Only 38% of the responding students found an ePortfolio project to be useful and only 14% of them had added to their ePortfolio after the course concluded. About half (53%) of the respondents found the career services component valuable, but only 27% followed up with a visit to career services. Overall, 68% of the students agreed that the class helped them be better prepared for subsequent classes. We conclude that this First Year Experience course has been successful in preparing students for their academic progress in subsequent years.

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### **Targeting Students' Misconceptions through Career-Planning Courses**

Mary Shuttlesworth, Mount Aloysius College; Laura Rose, University of Maryland, Baltimore County; Taylor Clark, Evolution Counseling; Crystal Miller, York Technical Institute

Undergraduate students may feel unprepared for employment upon graduation, and higher education institutions may use career-planning courses to address this challenge. Career-planning courses may be especially important in academic disciplines like psychology, where earning a bachelor's degree does not specify a certain career path (Halonen, 2011). Students may harbor misconceptions about the field, including salary, educational requirements, and work-related duties. By addressing students' misconceptions in career-planning courses, students may be better prepared for future careers. Method: Undergraduate psychology majors from two institutions ( $n = 114$ ) completed a questionnaire based on the Profession of Psychology Scale (Rosenthal, McKnight, & Price, 2001) in addition to questions generated by the study's principal investigators on careers in psychology. Results: Participants overestimated median starting salaries for psychology degree holders compared to national median starting salaries and underestimated the educational qualifications required to become a psychologist. Participants (43%) indicated counseling as the most common employment subfield for psychologists, although most recent psychology doctoral degree recipients (61%) work in other settings (Finno, Michalski, Hart, Wicherski, & Kohout, 2010). Discussion: Many students are misinformed about starting salaries, career preparation, and job-related duties. Career-planning courses may address these misconceptions.

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### **Teaching about gender-based violence in Asian America**

Suchitra Samanta, Virginia Tech

Gender-based violence (GBV) has been, for me, the most difficult of many topics addressed especially in introductory Women's & Gender Studies courses. Recently I came to realize the paucity of material on this large demographic (17.3 million, U.S. Census 2010) in the text I was using. I researched other (edited) texts, and finally selected one which contained several readings that addressed Asian/Americans, in different contexts (health, visibility, work, etc.), as well as GBV (Dasgupta 2007; Lodhia 2012; Louie 2012; Thao 2012). My presentation will describe and discuss the effectiveness of a pedagogical method I have used, "Discussion Sheets" (DS), where students respond critically to "difference" (across race, ethnicity, and class) in patterns of GBV.

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### **Teaching Anxiety-Producing Content: Practical Applications from the Literature**

Chelsea Lyles, Virginia Tech; David Kniola, Virginia Tech; Kevin Krost, Virginia Tech

Chew and Dillon (2014) conclude, "students in nonmathematical disciplines (e.g., social sciences) regard statistics courses as the most anxiety-inducing course in their degree programs" (p. 196). Compounding the problem of statistics anxiety, faculty overestimate students' understanding of statistics and probability (Garfield & Ben-Zvi, 2007). In a review of the literature, Garfield and Ben-Zvi (2007) identified several best practices to help students gain mastery of statistics ideas and concepts: Students learn best through knowledge construction, active learning, practice, confronting errors in reasoning, the use of technological tools, and

consistent, formative feedback. Additionally, Chew and Dillon (2014) recommend differentiating between mathematics and statistics and introducing humor into statistics courses to reduce statistics anxiety. The purpose of this project is to explore the implementation of several best practices identified in the literature in two sections of a multidisciplinary, graduate-level quantitative methods course to decrease students' statistics anxiety and increase self-efficacy. The project will address how students encounter data, students' assumptions about data, how and when formal concepts are presented, how students develop statistical literacy, and how students analyze, interpret, and present data.

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### **Teaching Argumentation in First-Year Writing Courses Using Mixed Media**

Courtney Simpkins, Radford University

Argumentation is one of the more difficult critical thinking skills a writing student will learn in their time at a college or university. Not only will honing this skill help students in their college careers, but it will also assist them in their day-to-day lives when reading the news, watching television or movies, listening to music, and interacting with other forms of mixed media. Often, students come into writing courses with crude misconceptions of what argumentation is; asking my own students to categorize "argument" is often eye-opening, because they automatically associate it with words like "fight" and "war". Thus, rather than having students begin their argument essays with their personal opinions, we begin with a broad topic and look at many different perspectives and facts before the students put pen to paper. In his 2010 article, scholar George Hillocks Jr. states, "although many teachers begin to teach some version of argument with the writing of a thesis statement, in reality, good argument begins with looking at the data that are likely to become the evidence in an argument" (26). I agree with his assertion that students should focus on facts and data before creating their arguments, and I further argue that students – primarily first-year writing (FYW) students – need to be introduced to data and perspectives through a variety of mixed media. This poster presentation will show that watching a documentary, listening to a rap song, reading an essay, and looking at art all based on the same theme or topic helps students shed their misconceptions and showing them that successful argumentation is neither opinion-based nor "black and white".

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### **The Big Five for Faculty Engagement with Doctoral Students**

Sara Nasrollahian, University of Tennessee; Gwen Ruttencutter, University of Tennessee

The path to attaining a doctorate is a years-long, rigorous, and challenging endeavor. As more and more would-be scholars begin their respective paths (Okahana, Feaster, & Allum, 2016), only about one-half of doctoral students will reach their destinations (Bair & Haworth, 1999; Council of Graduate Schools, 2004; Lovitts, 1991; Lovitts & Nelson, 2000; Nettles & Millet, 2006). While this phenomenon of doctoral student attrition and completion has been studied from various angles, literature has suggested that engagement with faculty is an essential aspect in doctoral student success, defined as degree completion (Bair & Haworth, 1999; Barnes, Williams, & Archer, 2010; Earl-Novell, 2006; West, Gokalp, Peña, Fischer, & Gupton, 2011). Given the critical role that engagement with faculty plays in doctoral student success, the authors developed a new model, entitled the Big Five for Faculty Engagement with Graduate Students, for ways in which faculty can explicitly foster engagement with, and among, doctoral students. Informed by three conceptual frameworks – including adult learning (Knowles, Holton, & Swanson, 2005), relational teaching, and Collaborative Communication (Peters, 2011) – this model offers five over-arching faculty practices: Climate, Course Design, Assessment, Facilitation, and Self-reflection. Within each of these practices, the authors also provide specific strategies faculty can use to implement the Big Five practices. Lastly, the authors will model Big Five practices during the poster session by engaging with attendees and soliciting their insights and suggestions on the Big Five model. For example, the authors will use a gallery walk approach in which attendees can note their suggestions for additional strategies to foster engagement with graduate students.

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### **The Impact of a Social Intervention on Student Course Evaluations and Learning Outcomes**

Kevin Ayers, Radford University

**Abstract:** The purpose of this study was to determine if a social intervention between a faculty member and a student would improve student evaluation scores and improve student learning outcomes. Retention studies and high impact practices cite the importance of direct contact between the college professor and the student. Students who attain a sense of belonging through a positive faculty/student relationship are more likely to be retained and can experience positive effects on student learning (Klingo et al, 2014;

O’Keefe, 2013; Swecker, Fifolt & Searby, 2013; Morrow, et al., 2012). This study took place over the course of a college semester. There were two sections of an introductory course taught and students from one section, N=27, were invited to participate in a social intervention with the professor teaching the course. Students signed up for either a breakfast or lunch time slot over the course of the first nine weeks of the semester. Student and faculty met in a social setting for the meal. The purpose of the shared meal and conversations between student and faculty member was nonacademic, but the student could direct the conversation in whatever direction he or she desired. At the end of the semester, student evaluations on the intervention course were evaluated against the nonintervention introductory course and to the past five years of historical student evaluations. Specifically, questions about perceived learning were examined as well as questions about the enjoyment level of the course. Additionally, student scores on tests and assignments were compared both between the two sections and to the historical scores of students over the past five years. Results indicate that establishing a “social” relationship between student and faculty can have beneficial impacts on student self-reported satisfaction, . . .

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### **The Neuroscience of Creativity**

Lane Woodward, Virginia Tech

Creativity can be linked to intelligence because “characteristics, such as memory or logical operations, are still useful I creativity” (Richards, 2010 p.192), but is creativity equivalent to intelligence. Creativity is understood as production of new ideas and typically identified in the artistic community. Kirton (2011) describes all individuals as creative, and Sternberg (2004) defines creativity as the ability to produce both novel and appropriate outcomes. By combining both Kirton and Sternberg’s research the researcher can posit that all individuals can produce novel and appropriate outcomes to problem solving. Sternberg’s definition requires defining further regarding the terms novel and appropriate. Riquelme (1994) provides two operational definitions for novel: something can be novel if this is a first time thought for this individual, and secondly, something is novel in the cultural context answering the question has anyone ever had this idea before. Dietrich (2004) uses the functionality of neuroscience to identify and explain where and how four types of creativity exist in the brain. Creative insights occur from both processing mode and knowledge domain (Dietrich, 2004). The processing mode contains deliberate and spontaneous and defines the knowledge domain as emotional and cognitive (Dietrich, 2004). The four types of creativity proposed are: deliberate mode-cognitive structure, deliberative mode-emotional structures, Spontaneous mode-cognitive structures, and spontaneous mode-emotional structures (Dietrich, 2004). Schunk (2015) connects creativity with the frontal lobe of the brain where information is processed that relates to “memory, planning, decision making, goal setting, and creativity” (p. 34). Reflecting on Sternberg’s (2004) definition creativity as novel and appropriate it can be stated that knowledge is learned and stored in our brain. We have a better change of solving problems creatively when our working memory becomes long-term memory and the neural connections are strengthened.

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### **The Power Struggle: Teaching GTAs How to Effectively Use Their Power**

Brandi Quesenberry, Virginia Tech; Jessalyn Coble, Virginia Tech; Catherine Einstein, Virginia Tech; Laura Purcell, Virginia Tech

Teachers and students alike use communication strategies to influence the classroom dynamic, motivate others and exercise power to impact the course. Instructors exercise power “by communicating in ways that influence students to achieve desired individual and class goals. . . , while students may use their power to influence teachers to make changes or grant requests” (Schrodt, 2007, p. 1). The five types of power are coercive power, legitimate power, reward power, referent power, and expert power; these five types of power can be separated into two distinct categories including prosocial and antisocial power. Instructors who utilize their power effectively do so by limiting their antisocial power and developing their prosocial power, creating a more positive effect on student learning. However, this does not guarantee that students’ perceptions of power are the same as the instructors nor does it decimate all communication challenges in the classroom. For example, research shows that cultural differences can affect how students learn and how they react to different kinds of power. Therefore, instructors must critically evaluate the different types of student learning and communication in the classroom as well as not completing eliminating antisocial power (Tindage, 2016). Graduate teaching assistants (GTAs) require instruction on the various types of power and how to effectively use that power to positively impact learning inside and outside of the classroom. This poster will address specific topics such as the importance of training and instruction related to instructor power, and how the use of various types of power impact instructor-student communication.

## **The Professor's Role in Facilitating Student Educational Technology Acceptance**

Daniele Bradshaw, Liberty University

Professors have a major role in facilitating student educational technology acceptance. The professor's teaching strategies can incorporate "heutagogical" (Anderson, 2016, p. 42) approaches, which promote self-directed learning and self-efficacy through relevant experiences (Anderson, 2016; Hase & Kenyon, 2007). Professors plan to teach about best practices for educational technology use, and provide clear time for support and practice (Spector, 2016). It is important to provide learning opportunities in new settings, extend current knowledge, and promote exploration of relevant issues (Anderson, 2016; Hase & Kenyon, 2007). Students learn to integrate instructional planning and implementation (Hoffman, 2014). For example, practicum placements are venues for student research, practice, and reflection in educational technology. Professors use blended learning to facilitate exploration and reflection (Poon, 2013). In this poster presentation, the presenter discusses specific strategies and examples for teacher education professors. However, these approaches are generalizable to other fields and disciplines.

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## **Transformational Learning: Changing how a person knows**

Julie Stanley, East Carolina University

Higher education professionals should understand and attend to the interplay of adults' varying developmental capacities and readiness to engage in learning practices (Drago-Severson, 2009). This poster presentation will offer research based strategies and supports for each of the four major "ways of knowing" in adulthood as well as classroom practices to transform learners' "way of knowing". Rooted in constructive-developmental theory by Robert Kegan (1982, 1994, 2000), the transformational learning model helps adults to better manage the complexities of work and life. While informational learning expands what a person knows, 21st century life often presents "adaptive challenges", situations in which both the problems and solutions are unclear. New demands create adaptive situations that informational learning, alone, cannot adequately address. In 1994, Kegan argued that many of the demands of modern life outpace most adults' developmental capacities. As the world becomes increasingly more complex, this challenge is more evident. Transformational learning can only occur when educators identify and understand learners' current "way of knowing" (developmental capacity). The four "ways of knowing" in adulthood are: imperial instrumental, interpersonal socializing, institutional self-authoring, and interindividual self-transforming (Drago-Severson, 2009; Kegan, 2000). Learning experiences that are designed with learners' "ways of knowing" in mind are crafted to support the current developmental capacity and also challenge learners toward a more complex "way of knowing". A change takes place in the structure of a person's meaning-making system when transformational learning occurs. Eleanor Drago-Severson's research and publications can guide higher education professionals in identifying learners' ways of knowing, the classroom practices that support the current way of knowing, and practices that challenge learners toward a more complex way of knowing over time. This presentation will offer share instructional practices consistent with the common ways of knowing in adulthood to help instructors across domains tailor their transformative instruction.

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## **Using active learning, peer teaching, and immediate formative assessment to teach core concepts in a large introductory lecture course**

Erin Friedman, Lynchburg College

In the student-centered classroom, active learning (Michael, 2006), prompt feedback (Ambrose et al., 2010), and peer instruction (Topping, 2005) have been shown to increase student learning outcomes. These instructional pedagogies have been prioritized in multiple educational reports, such as the American Association for the Advancement of Science (AAAS) Vision and Change in Undergraduate Biology Education (AAAS, 2011). These teaching techniques are even more relevant given the characteristics of millennial learners, who are often team-oriented, confident, and eager to receive feedback (Monaco and Martin, 2007). To bridge these concepts, we use an interactive, collaborative modeling activity in our introductory biology courses to teach students how enzymes catalyze chemical reactions. This activity requires small groups of students to use modeling clay and a small whiteboard to demonstrate key aspects of enzymatic activity. The students are assigned core concepts to include in their model, and they choose two additional items from a list of enzymatic processes to demonstrate (e.g., competitive inhibition or allosteric activation). After creating their model, the students take turns presenting their work to other groups. During these interactions, the instructor and an undergraduate teaching assistant provide immediate feedback, address misconceptions, and provide suggestions for improvement.

The students continue to present their models for the duration of the class period. When surveyed, students overwhelmingly reported both enjoying and learning from the activity, and multiple students referenced their models when discussing enzymatic reactions on the final exam months later. This type of activity can be adapted to teach concepts across disciplines and is not restricted to a biology or even a science classroom.

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### **Using Micro Learning in Teaching Technology**

Mariah Rudd, Virginia Tech Carilion School of Medicine; Allen Blackwood, Virginia Tech Carilion School of Medicine; David Halpin, Jefferson College of Health Sciences; Rita McCandless, Virginia Tech Carilion School of Medicine; Shari Whicker, Virginia Tech Carilion School of Medicine

Background: Faculty often struggle to implement teaching technology within their curriculum due to lack of up-to-date knowledge on current technological innovations for enhancing learning. Incorporating teaching technologies into the curriculum allows learners to participate actively, pace learning, space content and allow for a tailored learning experience (1,2). To avoid cognitive overload, micro learning suggests delivering small doses of content within a sequence of interactions to ease and foster learning (3). By applying the micro learning concept, different teaching technologies can be taught in brief instances of learning consisting of short, bite sized learning concepts. Project Methods: The study team developed brief presentations on six unique teaching technologies to be presented to our Block Integration Committee (BIC) members. Presentations occur at the midpoint of the monthly BIC meetings and last approximately 10 minutes. In addition to the presentation, facilitators developed brief take-away resource cards. Additionally, weekly “quick tip” emails are sent out between each monthly session to reinforce the concepts discussed and share practical implementation strategies for success. A survey incorporating self-reported confidence using each technology was given before the micro learning sessions and will be given again at the conclusion of the curriculum. Results: Two successful micro learning sessions have been held at this point. Sixteen completed pre-surveys were collected at the beginning of our first micro learning session. Majority of respondents (11/16) indicated they typically teach using lecture style. Only 1 indicated using online format and 2 using the flipped classroom. Majority of participants (7) indicated they were somewhat uncomfortable “overall comfort with technology”. Themes identified when participants were asked why they were interested in teaching technology included: to improve teaching skills, to enhance instruction, to increase learner engagement/interactivity and to enhance efficiency. Two participants have shared that they already integrated at least one of the technologies into their teaching since attending the sessions. Discussion By providing bite-sized, practical instruction on implementing a diverse range of teaching technologies, we hope to engage faculty members in redesigning their didactic curricula to incorporate teaching technology techniques into their teaching. We hope to see improved confidence using the technologies and increased inclusion of the technologies within their teaching.

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### **Using VALUE Rubrics to Assess Student Learning and Program Outcomes**

Joyce O'Reilly, Franklin Pierce University College of Graduate and Professional Studies

Abstract: The Council of Higher Education Accreditation (2003), the Accreditation Commission for Education in Nursing (2017), the New England Association of Schools and Colleges (2016), and other stakeholders require institutions of higher learning to assess student learning and use the data obtained to inform program changes. One method of assessing student learning is aligning assignments with student learning outcomes (SLO) and evaluating the assignments using a valid reliable assessment tool (Gleason et al., 2013; Finley, 2011). The Association of American Colleges and Universities (AAC&U) has developed the VALUE rubrics which have been shown to be a useful tool in assisting institutions of higher learning to assess student achievement and contribute to program outcomes. The rubrics have high face and content validity and significant inter-rater reliability (Finley, 2011; AAC&U, 2017). The rubrics help to define “quality performance” and communicates to the student what is expected of the assignment (Renjith, George, G, & D’Souza, 2015, p. 426). Faculty benefit from VALUE rubrics as they have been shown to provide clear guidelines for evaluating assignments, documenting student progress, helping to identify gaps in the curriculum, guide program changes, and establishing a benchmark for documenting student achievement (Romeo & Posey, 2013; Gleason et al., 2013). The AAC&U VALUE rubrics are a good resource for undergraduate programs seeking to develop or enhance...

## **Using Video-Guided Training as a Faculty Development Tool for Creating a Shared Mental Model of Safety for Resident Assessment: A Pilot Study**

Mariah Rudd, Virginia Tech Carilion School of Medicine; Shari Whicker, Virginia Tech Carilion School of Medicine; William Leland, Brody School of Medicine; Claudia Kroker-Bode, Virginia Tech Carilion School of Medicine

Background: The literature suggests that faculty independently call upon multiple frames of reference. A study by Kogan 2011, noted that there is a need to ensure that faculty and staff approach assessment with a shared standard or mental model. Frame of Reference (FOR) has been proposed as a method of training faculty. Faculty with a common frame of reference is better able to use rating scales and behavior anchors as a reliable system to evaluate residents. This study utilized a novel short film as a training tool drawing upon a common non clinical scenario involving public safety (driving a car) to teach frame of reference to faculty. Methods: The study team developed an instructional video depicting the concept of frame of reference as applied to learning to drive, a common non-clinical scenario. Faculty members attended an instructional intervention where they first completed a demographic questionnaire and a survey regarding their overall satisfaction using milestones and traditional Likert-scale evaluative instruments to assess resident performance. Participants then viewed a standardized patient care scenario video capturing elements of Internal medicine Patient-Care sub-competencies. Faculty members independently rated the resident's performance using Modified-Mini-clinical evaluations and the Patient Care 3 Milestone. Next, participants viewed the instructional video pausing at various points to discuss and relate the non-clinical development to clinical development. A brief didactic was then provided to participants which included a thorough explanation and discussion of developmental anchors, milestones and evaluation forms. Following the didactic instruction, participants again completed performance evaluations of the standardized patient care scenario video as a post-test assessment. Participant evaluations of the clinical skill scenarios using the likert and milestone assessments from before and after the educational intervention were compared. Intra-class correlation coefficient and a paired sample t-tests procedures were used to analyze the data. Results: Upon analysis, no statistically significant change from pre to post was identified for the milestone or likert assessments. There was a trend toward improved comfort with milestones from pre to post with a high degree of inter-rater reliability. Additionally, there were positive associations when looking at the inter item correlations. Discussion: Our workshop was intended to enhance faculty understanding and commitment to a common frame of reference in regards to resident assessment. The video-guided faculty development session helped to better calibrate faculty with one another, thus increasing their inter-rater agreement of appropriate levels of competence in the non-clinical and clinical scenarios. Given our findings, we think it is important to explore potential reasons why our intervention didn't impact evaluation ratings and explore further comparisons between the faculty at both institutions.

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## **Utilization of Infographics in Educational Environment**

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Instructional materials are commonly used in assisting and facilitating learning among learners. One of the ways learners can acquire and remember information more efficiently is through the use of text and visuals they encounter in their classrooms. Infographics are a presentation technique that combines both text and visuals to represent ideas and concepts in a highly visual way, using text, illustrations, charts, bars, maps, or diagrams. There is limited scholarly literature that focuses on infographics use in education, and more attention should be shifted toward investigating this method of presentation. The aim of this literature review is to examine how the fundamental elements of infographics can support cognitive functions according to several theories of learning. I will analyze empirical studies taken from a range of disciplines concerning the impact of infographics on their readers. Finally, I will highlight the methods used to measure the effects of infographics utilization in these studies.

## **Video-based learning: Understanding usability, benefits, and perception of using online educational videos.**

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With a growing digital technology, e-learning has become a promising alternative to the face-to-face learning (Zhang, Zhou, Briggs, & Nunamaker, 2006), and video is one of the most popularly adopted media for online learning in both education and business sectors. Lynda.com, one of the leading online software education company, offers thousands of video courses in software, creative, and business skills. Lynda.com. As of 2015, approximately 45% of US institutions of higher education are using Lynda.com as a video-based training space. With Virginia Tech's subscription to Lynda.com, numerous face-to-face training sessions provided by the University for faculty and students have been replaced with Lynda.com online video tutorials. A study of usability, benefits and perceptions of Lynda.com educational videos will be useful for teaching practitioners who are interested in designing and implementing video-based learning in their instructions and the curriculum. The purpose is to determine student's awareness of Lynda.com resources provided by the university, determine how students utilize the resources provided through the Lynda.com, and examine the features of Lynda.com video tutorials that benefit student's self-directed learning? A quantitative research approach will be used in this study through a fourteen-question survey instrument to collect data. A sample size of about 1000 broken down into 400 graduate and 600 undergraduate students of Virginia Tech will be recruited for this study. The survey instrument was generated using Qualtrics survey software and SPSS will be used for further analysis to determine relationship with all variables. This poster presentation will address students' awareness of Lynda.com resources, discuss the use of Lynda.com resources for student's personal and academic learning.

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## **What's Next? Prospective Teachers' Use of a Noticing Framework**

Diana Moss, Appalachian State University; Lisa Poling

To improve the practice of teaching one must be engaged in the sense-making of student conceptual knowledge and procedural knowledge with purposeful guidance (Dewey, 1933; Schon, 1983). According to Barnhart and van Es (2014), the work of mathematics educators is to scaffold what is attended to and how that information is being interpreted. Without structured support, prospective teachers' (PTs) analyses of student knowledge tend to focus on aspects of the classroom typically related to management as opposed to student understanding of content (Barnhart & van Es, 2014). This presentation will share themes that emerged using the noticing framework, Attend, Interpret, Decide (Jacobs, Lamb & Philipp, 2010) completed within a mathematics content/pedagogy class. The purpose of this activity was to: 1) illustrate how to implement the Noticing Framework; 2) encourage PTs to describe student understandings of mathematical content, based on their understanding of mathematics education literature; and 3) allow PTs to see differences in how children respond to the same mathematical content. We will present how PTs' negotiation of a noticing framework for the analysis of student work samples demonstrated their understanding, misconceptions of mathematical content knowledge, and the impact it may have on classroom experiences. Engagement in this work allows us to see the PTs' reasoning so that we, mathematics educators, can improve our practice and our PTs' understanding related to mathematical content.

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## **Why Senegalese Professors are not Engaging in Learner-Centered Instructional Strategies in Higher Education Pedagogy.**

Ibukun Alegbeleye, Virginia Tech; James Anderson II, University of Georgia; Wangui Gichane, Virginia Tech

The prevalent method of instruction in Senegal is the traditional lecture-type teacher-centered (TC) strategy. Since students' learning needs are diverse, there is need for collaborative, activity-based, less rigid instructional strategies that are adapted to the needs of students (Ginsburg, 2010). We used Ajzen's (1991, 2012) Theory of Planned Behavior, to measure Senegalese professors' intentions of engaging in learner-centered instructional strategies by measuring three factors – attitude, subjective norms, and perceived behavioral control (PBC). The more favorable these factors are, the stronger one's intention to engage in LC instructional strategies would be. This study aims to explore why Senegalese Professors are not engaging in LC instructional strategies despite having a positive attitude towards them (Gichane, 2015). We used the perceived behavioral control and subjective norms to explain this. We conceptualized perceived behavioral control as professors' self-efficacy, while subjective norm refers to the influence of important referents (e.g. faculty) in engaging in LC strategies. Using a purposive sampling, forty professors from three public universities and two training institutes that had close involvement with the USAID's Education and Research in Agriculture (ERA) project completed the survey questionnaire. Preliminary result shows that about one-third of professors (31%) still fear repercussion on

expressing their opinions about their teaching strategies from faculty member. This may explain why many of them are still using the widely-accepted teacher-centered strategy. Moreover, while majority (58%) of the professors were confident about their ability to incorporate the LC strategy(self-efficacy), only thirty percent of them felt that they know enough about LC strategies to implement them in their curriculum, and many of them (43%) felt that they were unable to implement them correctly.

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### **Working towards social justice skill outcomes: Higher education assessment**

Michelle Szpara, Cabrini University

This three-year qualitative study represents a multi-layered approach to examining teacher action research, through the lens of the faculty researcher, as well as two teacher researchers, who were graduate students and teacher-leaders in their own schools. This study examines how a 6-credit action research course series can support social justice aims, guide teachers in developing voices for change, and create new forums for “public scholarship.” In the initial years of the program, teachers tended to avoid action research projects that involved more global changes beyond their individual classrooms. By the third year, over 50% of the teachers actively engaged their communities in the change process. A small percentage of teachers encountered explicit institutional resistance to their research.

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### **Young Immigrant Adults Health and Health Seeking Behavior: Empirical Evidence from the Survey on Adult Skills (PIAAC 2013)**

Roofia Galeshi, Radford University; Jyotsna Sharman, Radford University

The young immigrant population relies heavily on the internet for health-related information. However, the extent of this reliance depends on various sociocultural factors such as upbringing, culture, and values. The purpose of this study was to examine the health information seeking behavior of the young immigrant population in the United States. Using regression approach, we analyzed behavioral patterns of young immigrants between the ages of 20 and 24. Data were obtained from the 2012/2014 PIAAC international dataset. Our findings indicate that despite some similarities, young immigrant health-seeking behavior differs from the native population. We found that second-generation immigrants are more likely to turn to the internet first, with 74% of second-generation immigrants obtaining health-related information from the internet as compared to only 64% of the first-generation immigrants. Additionally, 41% of the first-generation young adults sought health-related information from their family members, friends, and coworkers as compared to only 38% of the second-generation young adults. Furthermore, only 49% of first-generation young adults reported using health-related as a source of information. The findings from our study suggest that since the internet is the main source of information for most minorities including the immigrant community, healthcare organizations, and public health agencies should invest in developing diverse and accessible quality online educational material, resources, and programs dedicated to young adults in order to help improve their health literacy and ameliorate health disparities. Furthermore, academic institutions should play an active role in encouraging young minority adults to reach out to healthcare professionals to seek trustworthy health-related information.

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### **Youth Empowerment in Agricultural Development : Application of Learning Theories**

Asha H Shayo, Virginia Tech; Rick Rudd, Virginia Tech

Theory is socially constructed, no one theory that fits all application of learning, but integrating different theories leads to accomplishment of educational goal. Youth perception of agriculture has transformed over the years as the emphasis on agriculture has increased. It is imperative for youth to get involved and interact with society in order to understand the need for agricultural knowledge and its importance in society, locally, regionally, nationally and globally. Habits are formed through learning certain behavior in a specific settings. Agriculture is essential for many country’s economy and food security, therefore youth as future workforce need to be motivated to produce quality products and appreciate the value of agriculture in their lives and pursue it as a career. Whether it is intrinsic or extrinsic motivation, youth need both to increase individual satisfaction and the need to engage in agricultural practices. Elderly people in societies have profuse agricultural knowledge which is important for youth development in agriculture. The elderly have been practicing agriculture for decades therefore through social interactions youth can learn traditional knowledge about agriculture. By combining the tradition and improved/new knowledge or technology about agriculture, youth will

be in a better position to do well in the agricultural practices. Success is created by integrating both. Understanding self and others is important when working with teams or group of people. People have diverse cognitive abilities with different and unique capabilities, additionally, each individual has their own style of solving problems (KAI). The difference in style (more adaptive vs more innovative) that exists can be good or bad depending on the nature of the task. However, the success of the team depends on the contribution from both the more adaptive and more Innovative for collaboration and team performance.

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