Guidelines for Authentic Instruction in an Online Environment for Faculty in Higher Education: Design, Development, and Illustrative Module Prototype

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ABSTRACT

This development design research dissertation used Richey and Klein's (1996) Type 2 model to create guidelines that inform instructional designers when designing authentic tasks in the online environment. Herrington and Oliver (2000) state that designing authentic tasks for online learning can be captured using nine characteristics. Bonk and Dennen's (2003) research empirically demonstrated a Framework for Online Instruction. Combining these two research frameworks, guidelines to inform the decisions to of instructional designers when for authentic in the online environment are designed, developed, and validated with expert reviewers in authentic learning.

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Dedication

To my father, Walter Hunger, who would have been pleased with this achievement.

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Chapter 1: Introduction and Background of Study

The Call for Authentic Activities in Online Instruction

Despite the intuitive appeal of authentic learning environments, and much anecdotal evidence that are effective in promoting higher order learning, such complex learning environments appear to be used only rarely in higher education courses. With many instructors and learners failing to engage with didactic and outmoded instructional methods, and unwilling to use technology that simply replicates the one-way transfer of information from teacher to student, authentic learning designs have the potential to improve student engagement and educational outcomes (Herrington, 2006). Many of the researchers and instructors exploring the model of situated learning have accepted that the computer can provide an alternative to the real-life setting and that such technology can be used without sacrificing the authentic context, which is such a critical element of the model (Herrington, 1999). Models developed from an instructional systems design approach identify discrete instructional events as a means for developer to create instructional materials to support teaching at a distance. The end result of such designs in online learning settings often fail to take advantage of the learning opportunities afforded by the new technologies of the 21st century (Oliver & Herrington, 2003).

There has been a great deal written about authentic activities in recent times as the influences of social learning theory and new advances in technology impact on educational theory, research and development. As a result, the role of activities and instructional strategies has grown to the point where they are no longer relegated to the role of a vehicle for practice of a skill or a process (Reeves, et al., 2002). Much of the instructional design that has been applied to Web-based learning environments has been guided by the principles of instructional-systems design, an

approach widely used for the development of learning materials prepared for correspondence and print-based forms of flexible delivery (e.g., Dick & Carey, 1978; Gagne & Briggs, 1974). "These approaches are based on the notions that learning occurs primarily through the consequences of internal and external conditions relating to the learner and the instruction (e.g., Smith & Ragan, 1993). In a systems approach to learning, i.e., Gagne, the activity or task that student do is describe in a list of nine events of instruction" (Oliver & Herrington, 2003, p. 112). Reeves et al., (2002) compare this approach to learning environments with social learning theory as the influence. They state that the task is more problem-based and experiential for the learner. For example, students could be given a real-world problem to solve in a web-based environment and they could interact with professionals in the field where they could interview the director of the project to ask what they would have done in that situation.

The emergence of theories of learning such as situated cognition (Brown, Collins & Duguid, 1989, Lave & Wenger, 1991) and anchored instruction (Bransford, et al., 1990), and other influences such as problem based learning (Savery & Duffy, 1996), together with work in web-based learning were used to provide a foundation for complex activities as a central component of course design. Reeves et al., (2002) identified ten design characteristics of authentic activities utilizing the activities described by researchers. These characteristics were summarized together with supporting authors and researchers. They state "learning environments designed according to these guidelines can be offered successfully in a variety of modes" (Reeves et al., 2002, p. 565). In addition they stated that there is a "great deal of pressures on universities to provide quality learning outcomes for students who study at a distance" (Reeves et al., 2002, p.565).

The University of Virginia's School of Continuing and Professional Studies (SCPS), serves a broad, ethnically diverse, and talented community of over 15,000 adult students each year. The SCPS mission is to facilitate lifetime learning by providing educational opportunities of the highest quality for online courses so that learners can achieve their personal and professional goals. Annually, more than 100 resident and 500 adjunct faculty members teach with SCPS. Online course offerings range from education, accounting, engineering, physics, mathematics, procurement and contracting, web design and development, to philosophy.

Since 2005, many faculty members have transitioned to offering online courses, where much of the emphasis has been on training in the learning management system instead of the design of instruction. However, there is a need for design of online instruction to provide authentic experience for their adult students, who demand experiential and engaged learning. The online learning environment in which is utilized has immersed and changed. The use of both "media and technology have changed. In this environment the design methodologies used to foster learning remain strangely outdated- created for a time and need which no longer exist"(Siemens, 2005, p. 4).

Online Instruction and Learning Management Systems: Situated Learning Theory

Brown and Duguid (1993) noted that "One of the most persistent educational questions following discussions of situated learning has been: How can these situated theories be operationalized" (p. 10). Although many people were writing in the area at the time, and despite calls for a model of instruction to isolate those 'critical elements' that make apprenticeships successful, no comprehensive model of the approach for classroom practice had emerged. A comprehensive literature review and analysis conducted later in that decade proposed a model of

critical characteristics of situated learning, developed in reference to the design of multimedia learning environments (Herrington & Oliver, 2000). "This was later applied to web environments and then more generically to learning environments in higher education" (Herrington & Herrington, 2006).

However, research has also revealed that the recent prevalence of learning management systems often militates against the effective use of situated learning. The tendency for universities to place courses on the web (using systems such as WebCT and Blackboard) has often resulted in the focus being placed on information delivery rather than learning (Herrington, et al., 2005). Instructors often yield to the seductive appeal of a learning management system where it is easy enough to populate a weekly schedule with readings and activities, rather than create a complex and engaging task as a vehicle for substantial learning in the course. In such learning management systems, "teachers' roles can be trivialized by the technology, and many become preoccupied with the summary statistics readily available in the system, where frequency of access is often equated with learning" (Herrington et al., 2006, p.2).

According to Moore and Kearsley (1996), "distance education courses have been developed and delivered in a very piece-meal and unplanned fashion" (p.6). Often, during the conversion of collaborative face-to-face instruction to online courses, collaborative activities are replaced by independent assignments. According to Rovai (2001), "distance education courses must move away from imparting feelings of isolation and move toward generating greater feelings of community and personal attention" (p.33). Evaluations of technology innovations have shown that the weakest part has been the implementation of the technology, and the failure to consider environmental and contextual factors that impinge on the learner and the instructor (Alexander & McKenzie, 1998). While the theories that underpin the notion of situated learning

are relatively "easily explained, implementing these ideas in instructional settings can cause particular problems" (Herrington & Oliver, 1999, p.4). For instance, implementing these instructional strategies in an online environment leads to many questions in terms of the nature and "form of the instruction when one attempts to create learning environments that employ the principles and elements of situated and social learning theory" (Herrington & Oliver, 1999, p.4).

Social and contextual support for learning is essential, as online learners often have little direct contact with teachers and other students. Social learning theory provides guidelines and principles that indicate that successful learning occurs when it is contextualized, social, conversational, collaborative, and reflective yet translating these principles into effective pedagogy in online programs and support for learning remains the greatest challenge (McLouglin & Luca, 2006). Herrington and Oliver (2000) created design guidelines that demonstrate a learning environment for situated learning, where authentic contexts, tasks, and activities were depicted. Reeves (2002), states that although e-learning initiatives are hopeful and he identified five problems with e-learning in higher education: increasing faculty workload; dominance of traditional pedagogy; weak assessment of learning outcomes; questionable standards for accreditation of online programs; continuing lack of research in the field.

The design and creation of web courses to support authentic activities is not easily accomplished; however, if we are to use the capabilities and affordances of technology, together with the findings of recent research and theory, to improve learning outcomes in online programs we must endeavor to examine more closely the role of student activities and tasks in the learning process. The use of authentic activities and instructional strategies is one possible way to affect such change (Reeves, et al., 2002). After examining the roles of student activities and the tasks

that comprise the learning process, it may be possible to devise authentic activities and instructional strategies may work towards this change.

Collins (1993) notes that "computers give us enormous power to create situated learning environments where students are learning about reading, writing, math, science and social studies in ways that reflect the kinds of activities they will need these for" (p.3). Other researchers (e.g., Jonassen, 1999; CTGV, 1990; Young, 1995) see a role for computer-based technologies in fostering apprenticeship-style learning. A situated learning environment provide an authentic context that reflects the way the knowledge will be used in real-life, that preserves the full context of the situation without fragmentation and decomposition, that invites exploration and allows for the natural complexity of the real world (Brown, Collins, & Duguid, 1989; Brown & Duguid, 1993; CTCV, 1990). The implications for the development of these guidelines will be to provide examples of authentic instructional strategies for faculty to implement in an online program.

Research now recognizes the need to create active learning environments in which learners engage in conversations and inquiry processes that are authentic and relevant to the needs of students. An authentic learning framework emphasizes the social, interactive, and generative nature of learning tasks and forms of engagement. Activities need to be selected because they are socially engaging rather than purely cognitive, and where the underlying pedagogy is community and learner-centered rather than didactic (McLouglin & Luca, 2006). Thus, developing and designing the guidelines for learning design for quality online programs, where the design concept is based on theories of situated and authentic learning theory, which specifically discusses instructional online strategies for this environment will be the focus of this study.

The evolution from face-to-face instruction to distance education has created both opportunities and pedagogical issues for instructional designers. The rapid growth in web-based instruction mandates that attention be given to the delivery structures and pedagogical practices of online education. Traditional course design models generally focus on a face-to-face delivery mode; however, the change in instructional environment requires special attention be given to pedagogical practices (Boettcher & Conrad, 1999; Palloff & Pratt, 2001).

Oliver and Herrington (2003) describe a process for designing settings that promote knowledge construction in the online environment, which is composed of three components: specification of tasks to engage and direct the learner, specification of supports for online learners, and specification of the learning resources. Research in distance education has for many years investigated the "use of online technologies to enhance and support learner activities" (Spector, 2005, p. 89). One key to success for distance learning appears to lie in the design of learning environments that make effective use of the communications capabilities of technologies that can connect learners in meaningful ways (Goodyear, 2005). A second key to successful distance education stems from the design of learning environments that encourage learning activities that are relevant and/or authentic to the participants. "Authentic learning as a learning design takes many forms and has been shown to have many benefits for those student sin online units and courses" (Lebow & Wager, 1994, p. 233). In authentic learning settings, "real-life authentic tasks are used to create the core of the learning environment and the completion of tasks effectively occupies the entire student commitment for the course" (Herrington, et al., 2006, p. 3).

Purpose of Study

The purpose of this study will be to apply the authentic principles to the design of online learning for higher education in order to produce and develop guidelines for faculty when they are teaching and designing curricula for online courses and programs. In this study, guidelines for instruction will be developed by identifying the components of authentic online activities using the theory of situated and authentic learning in online environments. The guidelines will also be designed and developed in combination with the criteria from the empirical data from Bonk and Dennen's (2003) Instructional Frameworks for the Web on Practical Online Learning Initiatives. The focus will be to follow the protocol of these theories to develop and design guidelines that operationalize authentic online learning using these criteria and frameworks. These guidelines will be implemented in an illustrative module prototype, for specific content, where these criteria will be applied to the design of a course for an online environment.

Based upon the theoretical components of authentic activities in online instruction, the guidelines for instruction will be operationalized. These guidelines will be created by synthesizing the research in the field of situated learning theory, specifically Herrington and Oliver's (2000) research on authentic tasks. This will be synthesized with the use of empirical data from Bonk and Dennen's (2003) research on the Instructional Frameworks for the Web on Practical Online Learning Initiatives. These guidelines will provide specific activities, examples, and applicable scenarios so that faculty can use them as a guide to implement authentic activities in an online environment. The guidelines will also serve to inform instructional designers of the design decisions when creating authentic tasks for the online environment.

Chapter 2: Review of the Literature

Introduction

The review of literature to follow is presented to provide information to help guide the design, development and evaluation of a research study. The review will address the following elements while considering key aspects of both the problem area and research design:

1. Defining situated learning theory and elements of authentic Learning
2. Outlining the underpinning s exist related to design of situated learning environments,
3. Establishing the role of context, content, facilitation, role of assessment in a situated learning environment with authentic activities,
4. Outlining the importance of implementing specific instructional strategies for faculty when designing an online course,
5. Describing the rationale for authentic learning tasks in an online environment for the learner.

The review will conclude with a summary of how the guidelines for authentic online learning will be created, its features for design, and why it can be considered an effective approach to making guidelines for faculty teaching online courses.

Definitions

In order to have a concise, consistent understanding of this research study, it is necessary to define essential key terms. Terms have been defined based on a review of literature. The definitions stated are compiled for the purpose of this study and to build a common understanding for the reader from the perspective of the researcher.

Situated Learning and Elements of Authentic Learning

Over the past 30 years, attention has gradually shifted from investigating the effects of the external, physical form of instruction to examining the internal processes of learning. As a result, models and prescriptions for learning are founded on theoretical and empirical evidence about cognitive functioning, processes, and structure of memory. Using learning as a foundation, designers develop a conception of the thinking that occurs within the learner and use this conception to guide the design of environments for learning (Grabowski, 2004).

Lave (1988) states there are theories of learning characterized as "the culture of acquisition, understanding in practice, and the culture of acquisition, which also refers to practices of social scientists who think that culture is something to be acquired" (p.3). Social learning theory combines elements from both behaviorist and cognitive theories and posits that one learns best by interacting with others in social settings (Merriam & Caffarella, 1999). The situative approach to understanding cognition and conducting research "provides a synthesis of behaviorism and cognitivity" (Greeno, 1998, p. 21). Thus, the theoretical framework and underpinnings of situated cognition has been established.

In this research we have also seen that "situated cognition has emerged as a powerful perspective in providing meaningful learning and promoting the transfer of knowledge to real-life situations" (Choi & Hannafin, 1995, p. 53). Also, Henning (2004) states that it would be "difficult to overstate the enormous contribution that Jean Lave has made to studies of everyday cognition and situated learning and to the formulation of a social practice theory of learning" (p. 163).

One designs computer-based training programs that walk students through individualized sessions covering reams of information and drill practice. To assess learning we use tests with which student struggle in one-on-one combat, where knowledge must be demonstrated out of context, and where collaboration is considered cheating. Communities of practice through situated learning suggests that communities of practice through situated learning suggest that they are from a different perspective, one that places learning in the context of our lived experience of participation in the world (Wenger, 1998). Social learning theory works to develop and define such a perspective. The situative perspective has been discussed in terms of various studies using empirical research.

Authentic Activities

The Cognition Technology Group at Vanderbilt (CTCV) (1990) defined authentic activities by stressing the importance of complexity and the necessity to provide an environment capable of sustained examination. They describe authentic tasks, as 'generative' because of completion of the task requires the students to generate other problems to be solved. "Research in distance education has for many years, and continues today, to investigate the use of online technologies to enhance and support learner activity and engagement" (Spector, 2005, p.6). CTCV (1990) also defined anchored instruction as "anchors that are embedded within problem-rich environments to promote exploration and understanding". In anchored instruction, realistic settings are created in which "knowledge and skills are naturally embedded within authentic contexts"(Choi & Hannafin, 1995, p. 58).

Cranton and Weston (1986) state that instructional methods are instructor centered, learner-centered, or individualized. Specifically, learner-centered instructional methods can be

described as class discussion, "where the class size is small, students are involved, interactive, and it is effective for high cognitive and affective learning: (p. 265). One key to success appears to lie in the design of learning environments that make effective use of the communications capabilities of technologies that can connect learners in a meaningful way (Goodyear, 2005). These components are essential to building a situated learning environment using the appropriate instructional strategies, see Table 1: Attributes of Authentic Learning Elements.

Table 1: *Attributes of Authentic Learning Elements* (Herrington, Oliver & Reeves, 2006)

Element Attributes	
Tasks	Complex Activities Ill-structured Based on real-life scenarios and instances Resulting in a polished product
Learners	ICT literate Problem-solvers Reflective learners Collaborative learners Self-sufficient learners
Technologies	Providing access to rich media Providing learner and resource connectivity (ideally 24/7) Providing access to rich resource collections Supporting extensive functionality (including cognitive tools for construction of knowledge representations that can be shared, critiqued, and refined over time) Ubiquitous access and availability

Characteristics of Authentic Online Learning

A critical reading of the principal theorists (and critics) of situated learning reveals a number of important characteristics which have added to the evolving theory of situated learning and an attempt has been made here to distinguish those features. Jonassen (1991) defined authentic activities as tasks that have real-world relevance and utility, to integrate those tasks across the curriculum, provide appropriate levels of complexity, and allow students to select appropriate levels of difficulty or involvement.

Many of these authors believe that useable knowledge is best gained in learning environments, which feature the following characteristics. Situated learning can be examined through the use of several design elements (Herrington & Oliver, 2000). Characteristics of these environments include the following:

(1) provide authentic context that reflect the way the knowledge will be used in real-life
(2) provide authentic activities; provide access to expert performances and the modeling of processes
(3) provide multiple roles and perspectives
(4) support collaborative construction of knowledge; provide coaching and scaffolding at critical times
(5) promote reflection to enable abstractions to be formed
(6) promote articulation to enable tacit knowledge to be made explicit
(7) provide for integrated assessment of learning within the tasks

Underpinning learning theories of authentic online learning

"Any number of excellent texts present the history of psychology and provide accounts of how philosophers' views about knowledge and learning have changed over the centuries" (Driscoll, 2005, p.11). In other words, according to Driscoll there are epistemological traditions that underlie these different theories, which must be addressed when discussing learning theory and instruction. Learning theory and instruction can be studied in the context of historical perspectives. Driscoll (2005) first defines the theory of learning and then discusses the different

learning theories of learning based upon two distinctions: learning and behavior compares with learning and cognition.

Many methods of didactic education assume a separation between knowing and doing, treating knowledge as an integral but self-sufficient substance and theoretically independent of the situations in which it is learned and used. The primary concern of schools often seems to be the transfer of this substance which comprises abstract, de-contextualized formal concepts. The activity and context in which learning takes place are thus regarded as merely ancillary to learning, pedagogically useful, of course, but fundamentally distinct and even neutral with respect to what is learned. The activity in which knowledge is developed and deployed, it is now argued, is not separable from or ancillary to learning and cognition, nor is it neutral. Rather, it is an integral part of what is learned. Situations might be said to co-produce knowledge through activity. Learning and cognition, it is now possible to argue, are fundamentally situated (Brown, et al., 1989).

Learning is a persisting change in performance or performance potential that results from experience and interaction with the world. Learning theory is a set of constructs linking results, means, and inputs. Results are defined as changes in performance; means are hypothesized structures and processes responsible for learning; inputs are resources or experiences that trigger learning. The established body of knowledge on learning, including the organizational learning literature, conceptualizes learning as a cognitive process involving a selective transmission of comparatively abstract codified bodies of knowledge within and from one context- such as the classroom, training, and mentoring- to the sites of their application (e.g., specific work practices). Earlier contributions had questioned the adequacy and relevance of cognitive theories of learning, but Lave and Wenger's *Situated Learning* has, nonetheless, "been pivotal in drawing

together threads of earlier ideas into a more sustained conceptualization of situated learning within communities of practice"(Contu & Willmot, 2003, p. 284).

Behavioral learning theory learning is ascertained by objective measures in which behaviors are operationally defined and measured according to some behavioral indicator. With cognitive psychology, the primary goal begins with the identification of the ideal or expert knowledge structure(s). Once appropriate processes are identified, relevant processing activities are stimulated and specific strategies are taught to ensure the learner efficiently acquires the information or solves the problem (Shambaugh & Magliaro, 1997). The cognitive perspective differs from the behavioral one primarily in the assumption one makes about processes occurring within the learner. Cognitivists see learning as an internal process that involves memory, thinking, reflection, abstraction, motivation, and meta-cognition. Cognitive psychology looks at learning from an information processing point of view, where the learner uses different types of memory during the learning. According to Ally (2004) "information persists in the sensory store for less than one second; if it is not transferred to working memory immediately, it is lost"(p. 5). In terms of cognitive psychology, knowledge is presumed to be something that resides within the learner. To the extent that social and cultural influences are considered at all in cognitive theories, they provide a context for learning but learning continues to be viewed as "a process by which a learner internalizes knowledge, whether 'discovered', 'transmitted' from others or 'experienced' in interaction with others" (Lave & Wenger, 1991, p. 47).

Previously, learning theory was defined as comprising a set of constructs linking changes in performance or the capability to perform with what is thought to bring about those changes. The result of the learning is to be explained through inputs (largely external to the learner) and means (internal to the learner). The learning process is implied to be an individual one, unique

to each learner (Driscoll, 2005). The shift within cognitive science to situated cognition theory embraced by some psychologists (Brown, Collins, & Duguid, 1989; Greeno, 1998) and by many others is at least as profound, philosophically ad methodologically, as was the shift to cognitivism from behaviorism some 35 years prior. In their earlier shift, the exclusive focus on measurable stimuli and responses, connected only by reflex or operant conditioning was (largely) abandoned in favor of the rich descriptions of mental processes. The obvious differences between these approaches mask some of their deep commonalities. Kirshner and Whitson (1997) state that cognitivism, like behaviorism, understands knowledge and learning as resulting from experience within a stable, objective world. Community and culture can enter into cognitivist theory only insofar as they are decomposable into discrete elements that can participate in the stable, objective realm of experience. Thus, the opportunity to explore learning and knowledge processes that occur in a local, subjective, and socially constructed world is severely limited by both behaviorist and cognitivist paradigms. Dissatisfaction with this limitation by educators, anthropologists, and psychologists, and social theorists provides the main impetus for situated cognition theory.

Role of Context

While considerable interest has been generated for situated cognition, few guidelines exist related to design of situated learning environments. Choi and Hannafin (1995) state that the aspects of "situated learning environments to be considered are the role of context, the role of content, the role of facilitation, and the role of assessment" (p. 54).

The role of context emphasizes the importance of content in establishing meaningful linkages with learner experience and in promoting connections among knowledge, skill, and

experience. Several researchers have suggested that formal education has proven unsuccessful in preparing students to apply their knowledge in everyday situations, based on experience, within specific contexts. Choi and Hannafin (1995) state that situated learning methods attempt to individuate everyday cognition by anchoring knowledge in skill and realistic contexts. Since authentic tasks provide practical situation in which knowledge has meaning and which reflects ambiguity and imprecision inherent in everyday circumstances, situated learning environments are more likely to support transfer in real-life problem solving.

Instructional Strategies for Online Courses

Online teaching and learning is quickly becoming a common feature of learning environments across all sectors of education. The literature suggests that many of these assumed goals are often not being met in practice. In addition, there appears to be a number of imperatives driving the move to online learning among educational institutions worldwide. These include accessibility, flexibility, cost-effectiveness, and learning quality (Oliver, 1999).

According to Bonk and Reynolds (1997), to promote higher-order thinking on the Web, online learning must create challenging activities that enable learners to link new information to old, acquire meaningful knowledge, and use their meta-cognitive abilities; hence it is the instructional strategy and not the technology that influences the quality of learning. Kozma (2001) argues that the particular attributes of the computer are needed to bring real-life models and simulations to the learner; thus, the medium does influence learning. "However, it is not the computer per se that makes students learn, but the design of the real-life models and simulations, and the students' interaction with those models and simulations" (Ally, 2004, p.3). The computer is merely the vehicle that provides the processing capability and delivers the

instruction to learners (Clark, 2001). Ally (2004) says, "Kozma is correct in his claim, but the learners will not learn from the simulations if the simulations are not developed using sound design principles" (p. 3). Despite the findings of the need for pedagogical tools for the Web, most online courseware is pedagogically negligent (Bonk & Dennen, 1999). Most e-learning tools available provide templates and guidelines for warehousing students and providing static course material. However, assistance in developing rich situations for collaborative knowledge construction, information seeking and sharing, reflection, and debate, and problem-based and situated learning is generally overlooked in the design of standard courseware tools (Bonk & Dennen, 2003).

Choi and Hannafin (1995) through a compilation of extensive research state the importance of the role of content emphasizing the following principles: "knowledge as tool, content diversity, and transfer, cognitive apprenticeships, and anchored instruction" (p. 55). They also state the role of facilitation using the principles of "modeling, scaffolding, coaching, collaborating, and fading along with the role of assessment using the principles of problems and issues, trends in situated learning environments, self-referencing, diversity and flexibility of learner-centered measures with portfolios and concept maps". Herrington and Oliver (1999) make the point that "one theory of learning that has the capacity to promote authentic, real-life learning is that of situated learning and authentic activities" (p. 23). As was stated in the previous question, "instructional strategies, such as authentic cases, cognitive apprenticeships, anchored instruction, simulations, modeling, coaching, and scaffolding, support different learner-centered learning environments" (Jonassen, 2000, p. 64).

Rationale for authentic online tasks for the learner

The promise of situated learning theory and authentic activities is to focus attention directly upon learning as a pervasive, embodied activity involving the acquisition, maintenance, and transformation of knowledge through processes of social interaction. In common with researchers who study organizations as cultures, analyses of situated learning focus less on cognition and what goes on in individual heads, and more on what goes on in the context in the practice of groups (Weick & Westley, 1999). Learning is perceived to occur as "individuals become members of the 'communities' in which they are acculturated as they participated actively in the diffusion, reproduction, and transformation of knowledge-in-practice about agents, activities, and artifacts"(Contu & Wilmot, 2003, p. 285).

According to Brown and Duguid (1991), Lave and Wenger's (1991) conceptualization of situated learning theory enables us to identify "paths where learning is realized. Individuals have the "chance" of becoming part of a community of practice by observing "old-timers" and experts doing their job, and by interacting physically and verbally with them. Learning is conceived to by synonymous with the process of being socialized or enculturated into a community of practice…The cultural context, the co-constitutive nature of individual-action-environment, and multiple knowledge communities have all become elements of situated cognition theory (Driscoll, 2005). "Popular wisdom holds that common sense outweighs school learning for getting along in the world- that there exists a practical intelligence, different from school intelligence, that matters more in real life" (Resnick, 1987, p. 15). Brown, Collins, and Duguid (1989) have argued "many traditional teaching practices result in inert knowledge, or the inability of students to use what they know in relevant situations" (p. 13). Brown et al., (1989) make a distinction between *novices*, *experts,* and *just plain folks*. *Novices*, or students tend to

memorize algorithms and often fail to apply them to new but similar circumstances. *Experts*, or practitioners, work from a rich knowledge base to solve problems arising from, defined by, and resolved within the constraints of the activity in which they are engaged. Similarly, *just plain folks* also solve problems within the context in which they are working, but the knowledge base at hand is filled more with situational experiences and causal stories, not formalized, conceptual rules and causal models. "Both *experts* and *just plain folks* engage in the authentic activity of their culture to engage in the purposeful problem-solving" (Griffin, 1995, p.66). Resnick (1987) supports this perspective in the following statement: "Work, personal life, and recreation take place within social systems, and each person's ability to function successfully depends on what others do and how several individuals' mental and physical performances mesh" (p. 14).

In situated learning the student sets out to discover the relationships among the to-be-learned concepts, the mentor provides the scaffolding needed to reach their new goals. The undergirding proposition of situated cognition is that learning should occur through cognitive apprenticeships, in which learners complete realistic tasks under the tutelage of a mentor or more experienced learner. Three major principles derive from this proposition (Griffen, 1995):

a) The first principle centers around enculturation, the notion that people adopt the behaviors and belief systems of groups of people or cultures with which they interact.

b) Second, knowledge is an integral part of the context in which it is learned and of the activity in which it is developed.

c) Last, there is a distinct difference in learning problem solving styles among novices, experts, and *just plain folks*.

Thus, as the student sets out to discover their relationships among these to-be-learned concepts, the mentor provides the scaffolding needed to reach these new goals. This acquired

but unusable knowledge is referred to as inert knowledge, whereas knowledge that is well developed and is useful is robust knowledge (Cognition and Technology Group at Vanderbilt (CTCV), 1990). "The function of a cognitive apprenticeship is to allow students to interact with and use knowledge in a meaningful context in an attempt to ensure that the knowledge which is acquired is indeed a useful tool and robust in nature" (Griffin, 1995, p.66).

Other researchers claim that anchored instruction "provides a means for recreating some of the advantages inherent in cognitive apprenticeship training and may in fact, make it possible to create learning experiences that are more effective than many that occur in traditional apprenticeship training" (The Cognition Group at Vanderbilt (CGTV), 1990, p.2). Thus, designing situated learning through authentic activities would meet the needs for faculty designing as well as creating online instruction for learners in courses at the School of Continuing and Professional Studies (SPCS) at the University of Virginia (UVa).

The Importance of Authentic Online Learning: What is the relevance?

In distance education, we have in many ways, several critical factors that need to be reviewed prior to even considering how the course will be presented and function. These include the audience characteristics, geographic dispersion, the goals of the learners, the goals and missions of the learning organization, the costs that must be recovered, the costs of delivery, the political environment at the time for the learning organization, the faculty compensation, and the market competition (Shearer, 2003). Higher education faculty and administrators need useful frameworks and guidelines for utilizing the Web in instruction. A series of research studies (Bonk & King, 1998) and online course experiments at Indiana University (Bonk, 1998; Bonk, Fischler, & Graham, 2000; Bonk, Hara, et al., 2000) spurred the development of various online

learning frameworks. In their study, they developed a framework of the effects of instructional frameworks for the Web on practical online learning initiatives. Using this research as a basis to create guidelines, Bonk and Dennen (2003) outlined four Web-based instruction frameworks relating to the following:

(1) levels of Web or technology integration

(2) participant interaction

(3) instructor and student roles

(4) pedagogical strategies (p.333).

When combined with online learning initiatives, in their research, they can be used to plan, design, teach, and evaluate online courses and programs. See Table 2: Framework of the Effects of Instructional Frameworks for Web on Practical Online Learning Initiatives.

Table 2. *Framework of the Effects of Instructional Frameworks for Web on Practical Online Learning Initiatives* (Bonk & Dennen, 2003)

	Online Learning Initiatives		
Instructional Frameworks for the Web	Instructor Training Programs	Pedagogical Guidelines, Reports, Resources, Materials	Instructional Design Benchmarks
Level Of Web Integration	Provides Classification	Provides Classification	Provides Classification
Participant Interaction	Provides Training Content	Generates activity ideas	Embedded Benchmarks
Student and Instructor Roles	Provides training content	Generates activity ideas	Embedded Benchmarks
Pedagogical Strategies	Provides training content	Generates activity ideas	Embedded Benchmarks

In addition, integrating Bonk and Dennen's (2003) research with the Herrington and Oliver's (2000) nine characteristics of authentic activities in online instruction will serve as the foundational theory that will underpin the development of the guidelines for situated and authentic learning environments for online programs. While the theories that underpin the notion of situated learning and authentic activities are easily explained, implementing these ideas in instructional settings can pose particular problems. The literature reveals a number of case studies and research that the situated learning approach can be used successfully as a model of instruction (e.g. Griffin, 1995; Bransford, Sherwood et al., 1990; Cognition and Technology Group at Vanderbilt (CTGV), 1990, 1993a, 1993b; Herrington & Oliver, 1999). See Table 3: Characteristics of Authentic Activity, with Supporting Authors.

Table 3: *Characteristics of authentic activity, with supporting authors*

(Reeves et al., 2002, p. 565)

No.	Characteristic of authentic activity	Supporting authors, researchers and theorists
1.	Have real-world relevance	(Lebow & Wager, 1994; Cronin, 1993; Oliver & Omari, 1999; Brown et al., 1989; Cognition and Technology Group at Vanderbilt, 1990a; Jonassen, 1991; Resnick, 1987; Winn, 1993; Young, 1993)
2.	Are ill-defined, requiring students to define the tasks and sub-tasks needed to complete the activity	(Sternberg, Wagner, & Okagaki, 1993) (Lebow & Wager, 1994) (Bransford, Vye, Kinzer, & Risko, 1990) (Young, 1993) (Brown et al., 1989; Cognition and Technology Group at Vanderbilt, 1990a; Winn, 1993; Young, 1993)
3.	Comprise complex tasks to be investigated by students over a sustained period of time	Lebow & Wager, 1994) (Bransford, Vye et al., 1990) (Cognition and Technology Group at Vanderbilt, 1990b) (Bransford, Vye et al., 1990; Cognition and Technology Group at Vanderbilt, 1990b; Jonassen, 1991)
4.	Provide the opportunity for students to examine the task from different perspectives, using a variety of resources	(Sternberg et al., 1993) (Bransford, Vye et al., 1990) (Young, 1993) (Cognition and Technology Group at Vanderbilt, 1990b)
5.	Provide the opportunity to collaborate	(Lebow & Wager, 1994) (Young, 1993) (Gordon, 1998)

6.	Provide the opportunity to reflect and involve students' beliefs and values	(Young, 1993) (Myers, 1993) (Gordon, 1998)
7.	Can be integrated and applied across different subject areas and lead beyond domain-specific outcomes	(Bransford, Sherwood et al., 1990; Bransford, Vye et al., 1990; Jonassen, 1991)
8.	Are seamlessly integrated with assessment	(Reeves & Okey, 1996; Young, 1995) (Herrington & Herrington, 1998)
9.	Create polished products valuable in their own right rather than as preparation for something else	(Barab, Squire, & Dueber, 2000) (Gordon, 1998)
10.	Allow competing solutions and diversity of outcomes	(Duchastel, 1997) (Bottge & Hasselbring, 1993) (Young & McNeese, 1993) (Bransford, Sherwood et al., 1990; Bransford, Vye et al., 1990)

Guidelines are created based upon this framework can be offered in an online environment. However, there are a number of affordances of online technology that enable these characteristics to be operationalized. For example, a web-based course of study can incorporate in its design a metaphor based on a realistic and authentic context to preserve the complexity of the real-life setting. Students accessing the site can move freely around the resources as required, rather than in a linear manner through modules or section of text in a set sequence. Problems presented to students can use the full capacities of the technology to present situations and scenarios in video clips, text links, and images to give meaning and purpose to the students' endeavors, and to provide motivation to complete the task. Collaboration can be encouraged through appropriate tasks and communication technology. The design and creation of guidelines for web courses that support authentic activities is not easily accomplished, however if one is to

use the capabilities and affordances of technology, together with the findings of recent research and theory, to improve online teaching, the use of authentic activities is one way to affect such change (Reeves et al., 2002).

There is an ongoing debate about whether it is the use of a particular delivery technology or the design of the instruction that improves learning (Clark, 1983; Kozma, 2001). It has long been recognized that specialized delivery technologies can provide efficient and timely access to learning materials; however, Clark (1983) has claimed that technologies are merely vehicles that deliver instruction, but do not themselves influence student achievement; however, the same studies suggest that the reason for those benefits is not the medium of instruction, but the instructional strategies built in the learning materials (Ally, 2004). Typically, variations in instructional strategies have primarily been dependent upon the nature of the learning task, and to a lesser extent, upon the nature of the learner. Smith and Ragan (1993) outline some learning environment considerations, and Dick and Carey (1996) consider some performance elements. These contextual additions are in part based upon Richey's (1992) identification of critical pre-instructional and post-instructional contextual factors that influence training and attitude change (Tessmer & Richey, 1997).

Online teaching and learning is quickly becoming a common feature of learning environments across all sectors of education. The literature suggests that many of these assumed goals are often not being met in practice. In addition, there appears to be a number of imperatives driving the move to online learning among educational institutions worldwide. These include accessibility, flexibility, cost-effectiveness, and learning quality (Oliver, 1999).

According to Bonk and Reynolds (1997), to promote higher-order thinking on the Web, online learning must create challenging activities that enable learners to link new information to

old, acquire meaningful knowledge, and use their meta-cognitive abilities; hence it is the instructional strategy and not the technology that influences the quality of learning. Kozma (2001) argues that the particular attributes of the computer are needed to bring real-life models and simulations to the learner; thus, the medium does influence learning. "However, it is not the computer per se that makes students learn, but the design of the real-life models and simulations, and the students' interaction with those models and simulations" (Ally, 2004, p.3). The computer is merely the vehicle that provides the processing capability and delivers the instruction to learners (Clark, 1983). "Kozma is correct in his claim, but the learners will not learn from the simulations if the simulations are not developed using sound design principles" (Ally, 2004, p.3).

Situated Learning and Technology

Situated learning is a concept that recognizes the value to be gained from the contextualizing learning within settings, which reflect the purpose of learning and how learners might ultimately apply this learning beyond the classroom (Brown, Collins, & Duguid, 1989). Oliver (1999) states "situated learning encourages learners to construct their own meaning from knowledge and information in the learning process and places an emphasis on interaction and socialization among learners"(p. 242). As stated in the previous question, "situated cognition has emerged as a powerful perspective in providing meaningful learning and promoting transfer of knowledge to real-life situations" (Choi & Hannafin, 1995, p. 53). Thus, situated learning, which can be integrated into online courses with technology, is an emerging theme that must be addressed.

Rationale of Learning Theory and the Learner

The need for a comprehensive explication of contextual analysis prompted Tessmer and Richey (1997) to develop a more complete theoretical model that provides direction for the design phase. It includes: a comprehensive definition of context; the historical role of context in ID; contextual levels and factors that should be considered in ID; a design process for utilizing contextual analysis information; and contextual analysis data-gathering tools. This comprehensive model indicates how designers can engineer contextual elements to facilitate learning and performance, in conjunction with the instructional strategy employed (Tessmer & Richey, 1997).

Behaviorism, cognitivism, and social learning theory are the three broad learning theories most often utilized in the creation of instructional environments. These theories, however, were developed in a time when learning was not impacted through technology. Over the last twenty years, technology has reorganized how we live, how we communicate, and how we teach and learn (Siemens, 2005).

Situated cognition, or situated learning has made a significant impact on educational thinking since it was first expounded by Brown, Collins, and Duguid (1989). However, Brown, Collins and Duguid (1989) were the first to use the ideas to produce a proposal for a model of instruction that has implications for classroom practice. The model arose out of successful learning situations by researchers. An analysis of common features found in all successful models was a set of six critical factors: apprenticeship, collaboration, reflection, multiple practice, and articulation (Herrington & Oliver, 1999).

The situative perspective emphasizes aspects of problem spaces that emerge in activity, the interactive construction of understanding, and the participant's engagement in activities,

including their contributions to group functions and their development of individual identities. The perspective focuses on the activities and practices of learning and includes participation in these practices as part of what the participants learn. Thus, taking the situative perspective, learning environments organized on behaviorist skill-acquisition principles encourage students to become adept at practices, involving receptive learning and drill, which result in efficient performance on tests, and learning environments organized on cognitive knowledge-structure principles encourage student to become adept at constructing understanding. As a scientific perspective, situativity does not say what educational practices should be adopted. However, it does say that the activities of different learning practices are important for differences in their effectiveness or efficiency, but also because participation in those practices are fundamental in what participant learn. "If we value participants' learning to participate in inquiry and sense-making, we need to arrange learning practices of sense-making for them to participate in" (Greeno, 1998, p.14). Bruner (1960) also captures the significance of learner participating stating "The first object of any act of learning, over and beyond the pleasure it may give, is that it should serve us in the future. Learning should not only take us somewhere; it should allow us later to go further more easily" (p. 70).

According to Siemens (2005) significant trends in learning include the following:

a) Many learners will move into a variety of different, possibly unrelated fields over the course of their lifetime.
b) Informal learning is a significant aspect of our learning experience. Formal education no longer comprises the majority of our learning. Learning now occurs in a variety of ways-through communities of practice, personal networks, and through completion of work-related tasks.
c) Learning is a continual process, lasting for a lifetime. Learning and work related activities are no longer separate. In many situations, they are the same.
d) Technology is altering (rewiring) our brains. The tools we use define and shape our thinking.
e) The organization and the individual are both learning organisms. Increased attention to knowledge management highlights the need for a theory that attempts to explain the link

between individual and organizational learning. Many of the processes previously handled by learning theories (especially in cognitive information processing) can now be off-loaded to, or supported by, technology.

f) Know-how and know-what is being supplemented with know-where (the understanding of where to find knowledge needed) (p.4).

Thus, the rationale for designing online instruction with the characteristics of authentic learning are an important aspect for the learners at SCPS. The learners at SCPS are often, returning to obtain certification, or a degree in a particular field, or to further their professional progress.

Implications for Instructional Design and Teaching Online in Higher Education

During the 1990s, the field of instructional design was challenged by several new developments (Gustafson & Branch, 1997). Instructional design is relatively new discipline that seeks to apply principles of educational psychology and communications theory to improve instruction instructional design continues to evolve in response to new developments in instructional theory and practices. Several developments are shaping the way instructional design is practiced today according to Gustafson and Branch (1997):

1. Instructional design continues to be influenced by the collection of theories, beliefs, and practices that can be classified as based in social learning theory. Situated learning, cognitive apprenticeship, postmodernism, and other concepts continue to push designers to refine instructional strategies and practices to incorporate new ideas from educational psychology.
2. The nature of instruction itself is changing. The public has fee or low-cost access to extensive knowledge resources through the Web, CD-ROMs, television, and other technologies. Teachers and instructional designers often have no control of their own knowledge acquisition (p.44).

All of these developments have implications for the practice of instructional design and instructional strategies implemented in distance education.

The Higher Education Program and Policy Council (HEPC) for the American Federation of

Teachers (AFT) (2000), state that "distance education is commonly used to describe courses in which nearly all the interaction between the teacher and student takes place electronically. Electronic communication may take the form of audio, video, e-mail, chat, teleconferencing, and increasingly, the Internet" (p. 2). Distance education courses for academic credit have been expanding dramatically at colleges and universities. A National Center for Education Statistics (NCES) survey estimated that more than 1.6 million students were enrolled in distance education course in 1997-1988. Still a good number of educators remain skeptical. Believing that teaching and learning are inherently social processes, these educators consider "same –time same-place" interaction central to a successful educational experience.

"In situated learning, learning is viewed as a situated activity has as its central defining characteristic a process one calls for legitimate peripheral participation" (Lave & Wenger, 1988, p. 29). Collins (1988) defines situated learning as: "the notion of learning knowledge and skills in contexts that reflect the way the knowledge will be useful in real life" (p.2). While the theories that underpin the notion of situated learning, such as legitimate peripheral participation, are relatively easily explained, implementing these ideas in instructional settings can pose particular problems. There are many questions that are raised in terms of the nature and form of the instruction when one attempts to construct learning environments that employ the principles and elements described by the proponents of situated learning theories (Herrington & Oliver, 1999).

Tessmer and Richey (1997) state that there are three contexts that must be investigated and designed for successful instructional development: the orienting, instructional, and transfer contexts. Each of these contexts has several different levels, with contextual factors within each level. Thus, all instruction is embedded I context, and context can be designed to exploit contextual resources and mitigate contextual restraints. Therefore, contextual analysis is a part of

the growing contextual movement in education: exemplified in context research (e.g., case research), contextual learning (e.g. situated learning), and context-based design.

Situated Learning Environment

While considerable interest has been generated for situated cognition, few guidelines exist related to design of situated learning environments. Choi and Hannafin (1995) state that the aspects of "situated learning environments to be considered are the role of context, the role of content, the role of facilitation, and the role of assessment" (p. 54).

The role of context emphasizes the importance of context in establishing meaningful linkages with learner experience and in promoting connections among knowledge, skill, and experience. Several researchers have suggested that formal education has proven unsuccessful in preparing students to apply their knowledge in everyday situations. Based on experience, within specific contexts. Situated learning methods attempt to individuate everyday cognition by anchoring knowledge in skill and realistic contexts. Since authentic tasks provide practical situation in which knowledge has meaning and which reflects ambiguity and imprecision inherent in everyday circumstances, situated learning environments are more likely to support transfer in real-life problem solving (Choi & Hannafin, 1995).

Choi and Hannafin (1995) complied information through extensive research, state that the role of content using the following principles, "knowledge as tool, content diversity, and transfer, cognitive apprenticeships, and anchored instruction" (p. 55). In addition Choi and Hannafin (1995) also state that that role of facilitation using the principles of "modeling, scaffolding, coaching, collaborating, and fading along with the role of assessment using the principles of

problems and issues, trends in situated learning environments, self-referencing, diversity and flexibility of learner-centered measures with portfolios and concept maps" (p. 56).

A Proposed Approach Authentic Online Instruction

Increasingly, organizations are adopting online learning as the main delivery method to train employees (Simmons, 2002). At the same time, educational institutions are moving toward the use of the Internet for delivery, both on campus and at a distance. For learners, online learning knows no time zones, and location and distance are not an issue. In asynchronous online learning, students can access the online materials at anytime, while synchronous online learning allows for real time interaction between students and the instructor. Learners can use the Internet to access up-to-date and relevant learning materials, and can communicate with experts in the field in which they are studying. Situated learning is facilitated, since learners can complete online courses while working on the job or in their own space, and can contextualize the learning (Ally, 2004).

There is a growing body of evidence guiding teachers towards best practice in the design of effective online learning environments. As universities and colleges spend more and more money on developing online courses, we should now be seeing some improvement in the forms of learning environments being created. There is an expectation among learners that online learning can and should enhance learning outcomes. Teachers need to carefully consider how well their courses are adding value to the learning programs. They can do this by considering the ways in which they use the new technologies and provide access to appropriate content and resources, to engage and motivate the learners and to support them in their learning activities (Oliver, 1999). Oliver (1999) also goes on to say that using the principles of situated learning to

design tasks and resources in online settings "recognizes the value to be gained from contextualizing learning within settings which reflect the purpose of learning and how learner might ultimately apply this learning beyond the classroom" (p.242).

Situated Learning and Authentic Instruction

"One theory of learning that has the capacity to promote authentic, real-life learning is that of situated learning" (Herrington & Oliver, 1999, p. 23). Jonassen agrees and states that situated learning needs to be problem based utilizing (2000) "instructional strategies, such as authentic cases, cognitive apprenticeships, anchored instruction, simulations, modeling, coaching, and scaffolding, support different learner-centered learning environments" (p. 65).

"Cognitive apprenticeships emphasize relationships between the content knowledge and through processes experts employ to perform complex tasks. The apprenticeship concept emphasizes the importance of experiential activity in learning"(Choi & Hannafin, 1995). Apprenticeship has come to figure importantly in theories of situated learning and into alternative models for schooling practices (Bailey, 1993; Collins, Brown, & Newman, 1989; Kvale, 1995; Lave, Smith & Butler, 1988; Lave & Wenger, 1991; Perelman, 1992).

The Cognition Technology Group at Vanderbilt (CTCV) (1990) defined authentic activities by stressing the importance of complexity and the necessity to provide an environment capable of sustained examination. They describe authentic tasks as 'generative' because the completion of the task requires the students to generate other problems to be solved. "Research in distance education has for many years, and continues today, to investigate the use of online technologies to enhance and support learner activity and engagement"(Spector, 2005, p.6). CTCV (1990) also defined anchored instruction as anchors that are embedded within problem-

rich environments to promote exploration and understanding. "In anchored instruction, realistic settings are created in which knowledge and skills are naturally embedded within authentic contexts"(Choi & Hannafin, 1995, p. 58).

Cranton and Weston (1986) state that instructional methods are instructor centered, learner-centered, or individualized. Specifically, learner-centered instructional methods can be described as class discussion, where the class size is small, students are involved, interactive, and it is effective for high cognitive and affective learning". In addition, individualized learning is "very structured, most effective at lower learning levels, modularized, and students work at their own pace" (Cranton & Weston, 1984, p. 265). One key to success appears to lie in the design of learning environments that make effective use of the communications capabilities of technologies that can connect learners in a meaningful way (Goodyear, 2005). These components are essential to building a situated learning environment using the appropriate instructional strategies.

Content for Authentic Instruction: Struggles and Concerns

The Application of Learning Theories and Strategies

Learning theories and research on learning theories are important to consider in process of instructional design or development. Basically, learning theories are psychological perspectives of learning presented to outline how learning occurs, what factors contribute to learning, and how transfer occurs (Driscoll, 2005). In order for teachers and learners to meet the learning objective, it is essential to understand both how the learning occurs (learning theory) and what action is needed to best facilitate that learning (instructional-design theory) (Ertmer & Newby, 1993; Morrison, Ross, & Kemp, 2007; Reigeluth,1999). As one discovers how learning

occurs, one can then be more concerned with the design of instruction, which can be derived from this information. Brown et al., (1989) highlight the significance of designing the instruction to situate learning:

> Many methods of didactic education assume a separation between knowing and doing, treating knowledge as an integral, self-sufficient substance, theoretically independent of the situations in which it is learned and used. The primary concern of schools often seems to be the transfer of this substance, which comprises abstract, de-contextualized formal concepts. The activity and context in which learning takes place are thus regarded as merely ancillary to learning, pedagogically useful, of course, but fundamentally distinct and even neutral with respect to what is learned. The activity in which knowledge is developed and deployed, it is now argued, is not separable from or ancillary to learning and cognition. Nor is it neutral. Rather, it is an integral part of what is learned. Situations might be said to co-produce knowledge through activity. Learning and cognition, it is now possible to argue, are fundamentally situated (p.32).

Ertmer and Newby (1993) outline three important reasons for focusing on learning theories as being:

> (a) learning theories are a source of verified instructional strategies, tactics, and techniques
> (b) learning theories provide the foundation for intelligent and reasoned strategy selection
> (c) integration of the selected strategy within the instructional context is of critical importance (p. 51).

Therefore, gaining a general background and basic understanding of learning theories can help in the overall development of instruction and justification of elements therein. The purpose of this section is not to provide intense and comprehensive definitions of learning theories and strategies. Rather, the theories are outlined to help authentic learning as situated within well-known and intensely studied theories of learning to help guide further design and development therein.

Differences in Learning Theories

As stated previously, (Shambaugh & Magliaro, 1997) "Behavioral learning theory learning is ascertained by objective measures in which behaviors is operationally defined and measured according to some behavioral indicator" (p.22). The cognitive perspective differs from the behavioral one primarily in the assumption one makes about processes occurring within the learner. Cognitivists see learning as an internal process that involves memory, thinking, reflection, abstraction, motivation, and meta-cognition. Cognitive psychology looks at learning from an information processing point of view, where the learner uses different types of memory during the learning. "The information persists in the sensory store for less than one second; if it is not transferred to working memory immediately, it is lost" (Ally, 2004, p. 5). In terms of cognitive psychology, knowledge is presumed to be something that resides within the learner. To the extent that social and cultural influences are considered at all in cognitive theories, they provide a context for learning but learning continues to be viewed as "a process by which a learner internalizes knowledge, whether 'discovered', 'transmitted' from others or 'experienced' in interaction with others" (Lave & Wenger, 1991, p. 47).

Previously, learning theory was defined as comprising a set of constructs linking changes in performance or the capability to perform with what is thought to bring about those changes. The result of the learning is to be explained through inputs (largely external to the learner) and means (internal to the learner). "The learning process is implied to be an individual one, unique to each learner" (Driscoll, 2005, p. 157). The shift within cognitive science to situated cognition theory embraced by some psychologists (Brown, Collins, & Duguid, 1989; Greeno, 1993) and by many others is at least as profound, philosophically ad methodologically, as was the shift to cognitivism from behaviorism some 35 years prior. In their earlier shift, the exclusive focus on

measurable stimuli and responses, connected only by reflex or operant conditioning was (largely) abandoned in favor of the rich descriptions of mental processes. The obvious differences between these approaches mask some of their deep commonalities. Cognitivism, like behaviorism, understands knowledge and learning as resulting from experience within a stable, objective world. Community and culture can enter into cognitivist theory only insofar as they are decomposable into discrete elements that can participate in the stable, objective realm of experience. Thus, the opportunity to explore learning and knowledge processes that occur in a local, subjective, and socially constructed world is severely limited by both behaviorist and cognitivist paradigms. Dissatisfaction with this limitation by educators, anthropologists and psychologists, and social theorists provides the main impetus for situated cognition theory (Kirshner & Whitson, 1997). Herrington et al., (2006) state that a key to successful distance education of learning environments is the "design of learning environments that encourage learning activities that are relevant and/or authentic to the participants" (p. 235). Authentic learning as a learning design takes many forms and has been "shown to have many benefits for learners, especially for those students in online courses" (Lebow & Wager, 1994, p.234).

Herrington and Oliver (2000) provide a practical framework for the design of learning environments and defined nine situated learning design elements.

1. Provide authentic contexts that reflect the way the knowledge will be used in real life.
2. Provide authentic activities.
3. Provide access to expert performances and the modeling of processes.
4. Provide multiple roles and perspectives.
5. Support collaborative construction of knowledge.
6. Promote reflection to enable abstractions to be formed.
7. Promote articulation to enable tacit knowledge to be made explicit.
8. Provide coaching and scaffolding by the teacher at critical times.
9. Provide for authentic assessment of learning within the tasks (p.45).

Herrington and Oliver (1999) study sought to investigate "the nature of a purposely designed learning environment based on situated learning, and to explore students' perception of learning environment in depth" (p. 31). They utilized techniques of qualitative analysis using computer-based software. The learning environment, for pre-service teachers, comprised a multimedia program on assessment in mathematics together with recommended implementation conditions for the classroom. Eight students were observed and interviewed to explore their perceptions of the situated learning environment. The findings suggested that the use of the situated learning framework provided effective instructional design guidelines for the design of an environment for the acquisition of advanced knowledge (Herrington & Oliver, 1999).

Learning Theories and Authentic Instruction

Authentic learning has been identified as a primarily social learning theory environment through which Barab, Squire, and Dueber (2000) argue that authenticity occurs "not in the learner, the task, or the environment, but in the dynamic interactions among these various components" (p.4). Recent research and learning theory provides a wealth of thought, ideas and strategies to inform the design and implementation of student-centered, realistic and effective learning environments (Herrington & Herrington, 2006). However, as some of the learning theories were outlined in the previous sections, the case can be made for the application of other inputs, means and instructional methods to the design, development and implementation of the authentic online environment.

Instructional-Design Theory

Once learning theories are clearly defined in the realm of social learning theory and authentic learning the design of instruction based on those theories should begin to take form. Instructional

development is concerned with understanding, improving, and applying methods of creating instruction. The result of instructional development as a professional activity is ready-to-use instructional resources, lecture notes, and/or lesson plans. " It is concerned with producing knowledge about diverse development procedures, (i.e., models), and situations in which each of those development models is optimal" (Reigeluth, 1983, p.8). Reigeluth (1983) also makes the distinction between instructional design, instructional development, instructional management, instructional evaluation that instructional design is concerned with optimizing the process of instructing, whereas in instructional development is concerned with optimization the process of implementation of instruction. Instructional management is concerned with optimizing the process of managing instruction and instructional evaluation is concerned with optimizing the process of evaluating the instruction.

Gustafson and Branch (1997) developed a taxonomy of ID models that were intended to help guide the way in which instructional designers could develop courses and programs. Models of instructional development and design vary widely in their purposes, amount of detail provided, degree of linearity in which they are applied and quantity, quality, and relevance of the accompanying operational tools. While no single model is useful for all settings and all purposes, it is important to identify the intended focus of ID models and the context they are intended. In this text, they identify models from the following authors: Gustafson (1994), Gerlach and Ely (1980), Heinich, Molenda, Russell and Smaldino (1999), Dick and Carey (1996) and Smith and Ragan (1993), with Gagne, Briggs and Wager (1992). The taxonomy discussed three classes of models: classroom orientation, product orientation, and system orientation.

They also specify the characteristics of these orientations according to categories: typical output in terms of amount of instruction prepared, resources committed, individual or team effort, ID skill and experience of individual or team, whether most instructional materials will be selected from existing sources or represent original design and production, amount of preliminary analysis conducted, anticipated technological complexity of the learning environment, amount of tryout and revision conducted, and amount of dissemination and follow-up (Gustafson & Branch, 1997).

With these guidelines in mind, the researcher will use this research study to inform the design of guidelines for online instruction with an authentic learning approach as they are derived from theories of learning.

Authentic Learning in Higher Education: Designing Guidelines for Authentic Instruction

In a study of supporting authentic learning environments through the use of technology, Herrington and Kervin (2007) note the strength of using technology to "access authentic contexts", which indicates "a whole learning scenario can be presented in realistic and motivating ways". Technology therefore, can help to enable "the use of tools – without which students would have difficulty engaging conceptually with the material" (p. 223).

The guidelines that will be created as a result of this study will adhere to the elements of authenticity from the criteria stated in previous sections and will comprise one framework for the design of effective learning environments that are appropriate for technology-mediated courses. The frameworks from Bonk and Dennen's (2003) research will provide the framework for how these criteria can be operationalized in an online environment. The purpose of the guidelines is to define the approach to how to operationalize authentic online instruction. The illustrative module prototype

will provide examples, which will hopefully encourage faculty to teach their own courses in a way that reflect authenticity.

The Challenge for Instructional Designers

Problem solving is generally regarded as the most important cognitive activity in everyday and professional contexts. Most people are required to and rewarded for solving problems. However, learning to solve problems is too seldom required in formal educational settings, in part, because our understanding of its processes is limited. Instructional-design research and theory has devoted too little attention to the study of problem-solving processes. (Jonassen, 2000). When it comes to designing instruction with an authentic learning approach, instructional designers, researchers argue "in designing learning environments it is impossible to design truly 'authentic' learning experiences" (Herrington & Herrington, 2006, p. 3).

Because most instructional design models guide designers to focus on single learning objects or discrete, prescriptive goals, designers reach problems when trying to apply these designs to one particular design problem. Barab, Squire and Dueber (2000) have also argued that authenticity occurs "not in the learner, the task, or the environment, but in the dynamic itself, but in the dynamic interactions among these various component. Authenticity is manifest in the flow itself, and is not an objective feature of any one component of isolation" (p. 38). Thus, Herrington and Herrington (2006) state that "cognitive authenticity rather than physical authenticity that is of prime importance in the design of authentic learning environments" (p.3).

Summary: Features of Authentic Instructional Strategies and its Role in Guidelines

This developmental research study will be used to discover any additional implications of how to provide guidelines for faculty when designing authentic activities for online instruction. The focus

will be on students and teachers working through producing guidelines for higher education faculty. The development design model will inform instructional designers of the decisions made to design and operationalize authentic tasks in the online environment. These guidelines will be designed and based in research for authentic learning and frameworks for online learning.

Chapter 3: Research Methodology

Introduction

Design and development research is a pragmatic type of research that offers a way to test theory and to validate practice that has been perpetuated essentially through unchallenged tradition. In addition, it is a way to establish new procedures, techniques, and tools based upon a methodical analysis of specific cases. The design and development of instructional products and programs has been considered by many to be the heart of the instructional design and technology (IDT) field. Over the past five decades, many scholars have called for research to strengthen the fundamental knowledge base of the IDT field (Richey & Klein, 2007). This study used a design and developmental research approach. The focus of this study was to create guidelines for authentic online learning based upon the identification of specific theoretical components of situated learning and authentic online activities, which will be operationalized in the guidelines. In addition, an illustrative prototype module of authentic online instruction will be developed. The implications of this research serves to provide guidance for faculty when designing online courses with authentic activities. The guidelines that will be developed and verified will use the procedures of Richey and Klein's (2007) Model Development and Validation in Appendix A. Therefore, it serves to inform the instructional designer of design decisions made utilizing the research.

Research Design: Design and Developmental Research

Research in the field of instructional design and technology has been criticized for its lack of emphasis on instruction design processes (Briggs, 1982; Driscoll & Dick, 1999). Briggs (1982) stated, "there is the broader need for whole research programs examining the merits of various elements in models of instructional design" (p.27). In a later discussion on research approaches, Briggs (1984) defined four categories of literature, which are examined in pursuit of our research. While the first three *cultures* are important to research, he considers the fourth *culture* to be of dire importance, yet the most sparsely explored. In this "Culture Four" as it is referred, the studies are representative not only of experimental design but good instructional design as well. The problem however, has been the apparent lack of research conducted, thus making it difficult to reference. In being a member of an applied field, researchers in instructional design and technology should seek to merge their research with the instructional design process as it is defined by the profession with a focus on the design and development of instructional programs and products (Driscoll & Dick, 1999). Reeves (2000) concurs and states, "if educational technologists want to be more socially responsible, they should pursue developmental goals" (p. 24).

As such, design and developmental research served to the guide researcher to address the concern of research paradigms in the field. Developmental research is an applied research method that is used to create a link between practice, research and theory in addition to providing a solution to practical problems. This is important to the progress of instructional development in that developmental research attempts to produce the models and principles that guide the design, development and evaluation processes (Richey, Klein, & Nelson, 1996). Richey, Klein and Nelson (1996) outlined two types of developmental research, the first (Type 1) being context-specific focused on a specific program and the second (Type 2) being more generalized in nature with a

generic focus. This research study was classified as Type 2 in that it will address the design and development of guidelines that can be implemented and generalized with a generic focus to inform instructional designers.

This type of research was pragmatic in that it offered a way to test theory and to validate practice that has been perpetuated essentially through unchallenged tradition. In addition, Richey and Klein, (2007) state there was a "way to establish new procedures, techniques, and tools, based upon a methodological analysis of specific cases" (p. 1). This model research study emphasized the study guideline development and verification. The outcome was a new design and development guidelines for designing authentic activities in an online course, where the observations were discussed for implications for instructional designers.

Guideline Development and Verification

"Design and development research covers a wide spectrum of activities and interests, in its simplest form it can be the study of the design and development process as a whole, or of particular process components" (Richey & Klein, 2007, p. 7). The guidelines were developed by identifying the theoretical components of authentic activities for online instruction. The component for authentic instruction in the guidelines were developed using Reeves et al., (2002) ten design characteristics of authentic activities in combination with activities described by Oliver and Herrington (2003), which describe a process for designing settings that promote knowledge construction in online environment. These components were specifications of tasks to engage and direct the learner, specification of supports for online learners, and specification of the learning resources. These theoretical components were used in combination with Bonk and Dennen's (2003) Framework of the Effects of Instructional Frameworks for the Web on Practical Online Learning Initiatives. A new framework

were created using the above theoretical components, and the guidelines for designing authentic activities for online instruction were operationalized with regards to the research on instructional frameworks for the Web and instructional design benchmarks; instructor training programs; and pedagogical guidelines. In addition, an illustrative prototype module was designed using the components and criteria specified in the guidelines.

These guidelines provide faculty with a framework and guide when designing online courses with authentic activities. These guidelines are being implemented at the School of Continuing and Professional Studies (SCPS), in a new faculty orientation for implementing authentic activities in online instruction. It will provide a common experience for faculty who are designing courses for online instruction. These guidelines will be designed using the criteria of the theoretical underpinnings stated above. An illustrative modules prototype of instruction will be designed using the instructional design ADDIE model, Molenda (2003), which will be discussed in the next section.

The procedures for how these guidelines will be designed in this design and developments study will be using the techniques that will be implemented will be designed from the checklist in Appendix A. The techniques for Model Development for Guideline Development will be:

To use design tasks that are realistic in scope; and

Record reactions of reviewers during design process.

The techniques from Model Validation that will be utilized for Verification will be:

Consistent use of pre-defined expert selection criteria;

Provide evidence of ease of designer use;

Account for the effects of deign and development time; and

Account for resources.

For Causal Inferences from Model Validation for Verification:

Use experts' publications as a substitute for direct interviews with them.

For Causal Inferences from Model Use:

Relate design activities to ISD model.

For Generalization and Interpretation the techniques to be used for Model development:

Collect data from natural work setting.

For Generalization and Interpretation the techniques to be used for Model Use:

Account for different settings.

For Anticipating Problems:

Model Validation: Insure correct model use by documenting the procedures;

Provide prompts for non-responsive expert reviewers of Instructional Design and Online Learning.

Instructional Design

The general nature of Type 2 research, as defined by Richey et al. (1996) is oriented toward a general analysis of design and development process, and includes a research methodology very similar in nature to that of the instructional design process. Instructional design (ID), sometimes referred to as *instructional development (ID)* or *instructional system design (ISD)*, is a systematic process for improving instruction and implementing the design and development of instructional products or programs (Gustafson & Branch, 2002; Briggs, Gustafson & Tillman, 1991; Reiser & Dempsey, 2002). Designing online courses with authentic activities, ID also involves problem-solving; the problem, however, is in the design of instruction, which can often be just as messy and ill-structured (Rowland, 1993). Models have been developed through research and theory on instructional design to provide guiding principles for analyzing, producing and revising learning

environments. In general, most instructional development models include five elements in their foundation, which serve to encourage the iterative development process

As Gustafson and Branch (2002) note, even though any one instructional development model may not satisfy all the needs within a defined setting and purpose, it is important to identify an ID model through its intended purpose. From there, models can be either fully adopted or adapted to meet the needs defined within the context. Along with a historical survey of research and literature in the field of ID, Gustafson and Branch (2002) also present a taxonomy for classifying existing models of ID. The classifications include *classroom-oriented, product-oriented and system-oriented* models. Based on the characteristics, this developmental research is situated in system-oriented model, where the output will be to provide guidelines for authentic activities for online instruction.

In following the recommendations of instructional design researchers and theorists, once a program or product is classified, it is also important to more specifically narrow the focus by identifying a model.

Design and Development using Authentic Online Activities: An Existing Model?

Design and development research that focuses on model use is typically characterized as being either exploratory or descriptive. Weston, McAlpine, and Bordonaro (1995) constructed and validated a model directed toward the formative evaluation phase of the ID process. Their model emphasized four components of data collection and revision: participants, roles, methods, and situations. Weston et al., (2005) expert review approach was based upon content analyses of 11 commonly cited tests in instructional design or formative evaluation… These identified descriptions of the four key components in their formative evaluation model. This first level is basic level of expert support for the model. "These descriptive segments were then analyzed to determine the

experts' support for the more detailed components of the model in question" (Richey & Klein, 2007, p. 68). Model Use design and development research use various techniques to address the research questions. The research design concerns are of validity, causal inferences, generalization and interpretation, anticipating problems. These model research studies can address issues that are problematic for design and development researchers involved in model studies, such as dealing with a wide range of participant characteristics (Richey & Klein, 2007). The techniques that will be implemented for validity are: consistently uses pre-defined projects or courses, determine reliability of coding systems, have designers verify accuracy of interpretations. Another major line of model use research explores the conditions surrounding the model use. The researcher will use the guidelines and procedures recommended, in addition to those of Jonassen (1997) and Hmelo-Silver and Barrows (2006), as a basis for creating a model of design, development and implementation for this developmental research study.

In considering the design and development model for authentic environments, three general roles can be identified; the role of the designer, instructor (teacher) and learner. Each member of the authentic environment carries responsibility for several tasks within the design, development and implementation of an ill-structured problem scenario. These elements, recognized as essential to the design, development and evaluation of the guidelines for authentic online environments, along with the roles of each member, are described.

The Designer

In the design and development study, the designer was responsible for carrying out several tasks, in order to prepare the program for the implementation phase. The first task was to coordinate with the expert reviewers, who in this case were an instructional designers and experts in authentic

instruction. They verified that the established the criteria and protocol have been that will be developed. The context, at this point, allowed the designer to more thoroughly understand the goals and objectives of the authentic online prototype and guide the remainder of the design and development stages. Within the context was knowledge associated with the problem domain. By carefully examining information, roles, and other aspects of the domain, the designer provided learners with the information they need to solve the problem. Jonassen (1997) says, "Designers need to generate an inventory of all the domain knowledge…information about the context in which the problem is naturally embedded" (p. 83). The context should be closely aligned with the course objective(s), student interests and skill levels.

Once the context was clearly identified, the designer referred to outline several complex issues found within the context. These issues helped identify and more clearly outline the problem with which the learners will interact. By outlining several key issues, the designer hypothesized how students interact and some possible solutions they might create. Through this process, the designer more closely aligned the problem scenario with the goals and objectives of the course.

With the context and its related issues identified, the designer worked to create a statement of the problem to be presented to the learners. The statement included details to clearly outline the context, the purpose and, in some cases, descriptions of characters and their personal role. It was important to remember that ill-structured problems do not necessarily have clear-cut goals or a single solution for which learners should be working to find. Therefore, Jonassen (1997) recommends providing the learner with restrictions or limitations to be considered in the problem solution. He recommended defining items such as time frames, budgets, client restrictions, and other guidelines to which the solution must conform. The problem statement should clearly identify these restrictions, which the learners use to outline their own goals and begin the problem-solving process.

In addition to more context-specific resources, the designer also provided both students and teachers with supportive learning materials. This included items such as a list of websites of case studies, which were helpful, some books or other items to references, tutorials for using computer programs or peripherals and even items to help guide thinking and questioning. These resources were used to move through the problem and help determine and present a solution.

Finally, the designer was responsible for developing a guide for authentic online instruction and designed an illustrative prototype module itself. The verification was used ensure the criteria was met and protocol was followed for authentic instruction.

Addressing Concerns and Issues

As mentioned earlier, several researchers have outlined concerns and issues within the design, development and implementation of both situated learning and authentic approach to online instruction. The growing influence of situated learning as an approach to learning, and a wide range of research studies and papers investigating alternative models of teaching and learning over the past decade have prompted many researchers in universities to implement more "authentic" teaching and learning environments. The challenge they have faced is to align university teaching and learning more substantially with the way learning is achieved in real-life settings, and to base instructional methods on more authentic approaches (Brown, Collins, & Duguid, 1989; Collins, Brown & Newman, 1989; McLellan, 1996; Cobb & Bowers, 1999). The next section contains one approach to addressing several of these concerns.

Participants

The guidelines for this study targeted the audience of the faculty at the School of Continuing and Professional Studies, who were teaching online courses for adult learners will the pilot study will

be using the guidelines with faculty teaching online courses. The development design process served to inform the decisions made for instructional design based upon the research from Herrington and Oliver (2000) and Bonk and Dennen (2003).

Next Steps

Through the recommendations from the expert reviewers, the pilot study incorporating these guidelines will be implemented with faculty and students in the following academic year. Through this research study, the researcher will be developing a single module to cover some content currently taught within the SCPS online courses. The content to be covered and included in the design of the Authentic Online Activities module however, have yet to be identified. The researcher will explain the elements of Authentic Online Activities module design and work with the faculty to determine an agreed upon subunit of content through which to focus the module developed for this research study.

Procedures

Authentic learning has found a place in the education agenda, as greater accountability in higher education grows. As technology continues to open up possibilities for innovative and effective teaching and learning opportunities, student and instructors are no longer happy to accept familiar classroom-based pedagogies that rely on content delivery and little else. While many instructors instinctively find the authentic approach appealing, many have difficulty envisioning how these principles could be applied across disciplines, and how they might work both in face-to-face and Web-based environments (Herrington & Herrington, 2006).

The development and design of Guidelines for Authentic Online Activities and illustrative module prototype involved the researcher taking on several roles throughout the course of the

research study. This section included an outline of those roles as well as the procedures and activities required to complete this research study.

Research Problem

First, the topic of interest and research problem from the workplace was identified, which addressed using the design and development study. The problem was both important and timely, as faculty are being asked to teach courses online, they need guidelines that address these issues. Palloff and Pratt (2005), say "very few guidelines currently exist for collaboration in the online environment" (p. 9). In addition, there was a substantial body of literature in situated learning, authentic tasks, and online learning. Thus, as an instructional designer, working with faculty to design online instruction, one has the resources, motivation, and resources to design and develop these guidelines for faculty for authentic online instruction.

Identification of Characteristics of Authentic Learning

A thorough review of the literature related to the research problem has been conducted and criteria for the study, the nine specific characteristics of authentic learning, were identified by Herrington and Oliver (2000). The protocol for these criteria that were followed was to operationalize these criteria in the guidelines for online instruction.

Application of Empirical Research: Online Learning Initiatives

The next step in the process was to utilize Bonk and Dennen's (2003) empirical research and data as the criteria to guide how authentic activities can be designed for the online environment utilizing Online Learning Initiatives and Instructional Frameworks for the Web specific online learning frameworks. The protocol that was followed with these frameworks was to operationalize

the characteristics in the context of authentic learning using Herrington and Oliver's (2000) research. The research from these frameworks that was used for the criteria for Online Learning Initiatives that will be used in this study will be instructional design frameworks, instructor training programs, and pedagogical guidelines. The research in the field was also utilized when guidelines were created for each specific characteristic of authentic learning.

Application of Empirical Research: Instructional Frameworks from the Web

In addition, the criteria created from the empirical research data was utilized from the Instructional Frameworks from the Web (Bonk & Dennen, 2003), in combination with participant interaction, student instructor roles, and pedagogical strategies, the authentic online guidelines was created in a matrix. The protocol to be followed was to operationalize each specific component to be matched with specific authentic activities.

Illustrative Module Prototype

An illustrative module prototype was designed and developed in accordance with the matrix for with a specific content focus, implementing the authentic online activities with a specific focus on one authentic activity, with the criteria mentioned above. The production documents, using specific components from Cennamo and Kalk (2005) were demonstrated in this section. An online component was created in UVaCollab as part of the production documents to provide a concrete example to inform instructional designers and faculty.

Instructional Design

The criteria from the ADDIE model, Molenda (2003), functioned as the instructional design model when designing the guidelines and illustrative module prototype. Using this protocol

throughout the development and design, the Analysis, Design, Develop, Implement and Evaluate (ADDIE), Molenda (2003) were followed for both the guidelines and illustrative module prototype. The ADDIE model, Molenda (2003), will serve as the design and development and the implemention and evaluative components that were addressed in the Validation component of this study. Reviewers in instructional design and authentic learning validated the design and development adhered to the criteria stated previously.

Reviewer Validation

Finally, each of the following components from Bonk and Dennen's (2003) research were validated: Authentic Activities; Online Learning Initiatives; Instructional Framework for the Web, were defined and listed as criteria for the reviewer in matrix form to validate the whether the authentic task components were operationalized. They also confirmed the need for the illustrative module prototype needed to be implemented and to provide a concrete example for both instructional designers and faculty. Refer to Table 4 for the Timetable of Research Events.

Table 4: *Timeline of Research Events*

Date	Event
Spring 2009	
	Present Prospectus
Summer 2009	Meet with Expert Reviewers
	Begin design and development
Fall 2009	
	Continue design and development
	Complete draft of module and materials; Present to experts
	Conduct meeting to revise module and materials
	Present prototype module and materials to expert reviewers
December 2009	
	Guidelines
	Module Prototype
	Researcher memos and analysis with notes
	Collect data through journals and activities
	Data analysis
December 2009	
By November 15, 2009	Guidelines Implemented in Module
by December, 15 2009	Reviewer Feedback and Recommendations
throughout month	Analyze Comments
by Jan 15, 2010	Final document write-up
February 2010	Final defense

Collaboration

Developmental research should involve "intense collaboration among researchers and practitioners" (Reeves, 2000, p. 25) and, in this case, the researcher will collaborate with the expert reviewers in instructional design and authentic activities in an online environment. Maxwell (2005) also mentions collaboration with practitioners as being an advantageous practical goal toward credibility for researchers with regard to including the "perspectives and goals" of participants. Collaboration involved a sharing of ideas, perspectives and opinions regarding the design of the authentic online activities module and guidelines. Through this collaboration, the researcher will contribute research-based design ideas as they relate to Authentic Online Activities, along with the design model developed for the purpose of this research. The instructional designer and authentic activities experts providing content and context-related information will serves as subject matter experts (Richey et al., 1996). Interviewing the expert reviewers will also be a component of this study. Interviewees will be identified and based their experience and credentials in instructional design and online learning. "The type of interview will be determined to be practical and to net the most useful information to answer the research questions" (Creswell, 2007, p. 130).

In addition, while the researcher will assume primary responsibility for the design, development and evaluation of the authentic online guidelines and module, it will be necessary to seek information from the other parties involved. This information will include, but not be limited to, items such as:

1. Type of instruction: Fully Online Course or Hybrid Course
2. Synchronous or Asynchronous Online Environment

This information will be applied to the overall design of the authentic online activities guidelines and module and taken into consideration through the development and design.

Communication

Russ-Eft and Preskill (2001) recommend using communication throughout the evaluation process as means to maintain the flow of processes and procedures. The researcher maintained primarily communication with the instructional designer.

To ensure compliance with the ethical aspects of any research, it was also necessary to communicate with my direct supervisor and the dean at SCPS, procedures and any possible risks involved. The researcher provided all materials necessary to communicate the purpose of the study, procedures involved, assurance of anonymity and other related messages. As an example, Appendix B included a letter of proposal to the deans and directors at SCPS outlining such procedures. The researcher made changes and provide finalized and approved versions of any messages to all parties involved.

Implementation

As the implementation phase of the research study approaches, the researcher was responsible for ensuring the expert reviewers are interviewed prior to the development of the authentic online guidelines and illustrative prototype module. The instructional designer scheduled a time several weeks prior to the development of these guidelines and prototype and met with parties involved to present all related materials as well as address any questions or concerns. The expert reviewers were also given a draft version mid-way through the development for feedback to check for adherence to the criteria of authentic online instruction and instructional design. Reviewers were given a few

weeks to review the final version of the guidelines and prototype and will be asked to make specific comments and recommendations with respect to the specific criteria of these products.

This section was designed to highlight the procedures in which the instructional designer will engage throughout the research study. In summary, Table 5: Summary of Procedures and Data Collection, is included to highlight these procedures along with the types of data that were collected throughout the evaluation process. The section that follows is a more thorough description of how this data will be analyzed and the analysis procedures the researcher will follow.

Table 5: *Summary of Procedures and Data Collection*

Procedure	Instrument	Data Source
Collaboration	N/A	Researcher
Communication	N/A	Researcher
Design	N/A	Researcher
Validation	N/A	Reviewer

Data Analysis

Maxwell (2005) states, "the experienced qualitative researcher begins data analysis immediately after finishing the first interview or observation, and continues to analyze the data as long as he or she is working on the research" (p. 95) thus, for this developmental research study, data analysis will begin at the onset of data collection and continue through the entire process.

Memos will be used to record researcher perspectives of the design, and development phases. Similar to the reflective journals, memos will be used to keep track of procedures, thoughts and ideas as they emerge throughout the study. Maxwell (2005) recommends writing memos "regularly…while

you are doing data analysis; memos not only capture your analytic thinking about your data, but also facilitate such thinking, stimulating analytic insights" (p.96).

"As themes and patterns emerge about design and online learning, the researcher will employ categorizing strategies, which Maxwell (2003) also calls coding" (Rossman & Rallis, 2003, p.96). Merriam (1998) suggests coding as a means for "organizing and managing data through the use of symbols, notations, key terms or other identifying characteristics" (p. 312) that will help with comparing, analyzing and referencing data throughout and beyond the scope of the research study. One problem however, as mentioned by Patton (1980), is knowing *how to flesh out the categories*. He recommends several methods through which this process of categorizing can occur, which include (a) the "process of extension (building on items of information already known", (b) "bridging (making connections among different items)", and (c) "surfacing (proposing new information that out to fit and then verifying its existence)" (p.88). The researcher will consider these methods and apply codes as they emerge through the data collected. The codes will then be used to "facilitate comparison between things in the same category and that aid in the development of theoretical concepts" (Maxwell, 2003, p. 96). More specific to the research study, the survey data will be collected, summarized and coded and compared with the coding of the journal entries and observations field notes.

Quality

The researcher intended to maintain quality, reliability and validity through the duration of the research study. Several steps will be taken through which to achieve this, to include:

1. The researcher identified personal perspectives and bias to increase data validity (Creswell, 2003; Merriam, 1998; Stake, 1995).

2. IRB approval is not required, as human subjects was not an issue. The researcher remained responsible for the security of all items throughout and beyond this research study.
3. The researcher identified personal perspectives and bias to increase validity (Creswell, 2003, Merriam, 1998).

Summary

In this chapter, the general design and methodology for the research study was outlined. As described, the researcher will follow a developmental research design to address the problem outlined in Chapter 2. The research will be conducted in a school of higher education. The researcher also conducted a pre and post interview with expert reviewers. The data from the reflective notes, will be analyzed using a constant comparative method and involve the generation of themes and general categories. These were discussed in relation to the expert reviewer recommendations.

Chapter 4: Findings for Design and Development of Guidelines

Guidelines for Authentic Tasks Operationalized

As higher education instruction is stretched into new electronic environments, e-learning frameworks will play a vital role in helping instructors and administrators reflect on their decisions concerning the theoretical perspectives, tools, activities, student and instructor roles, instructional strategies, and assessments pertinent to online learning. Frameworks can lead to more focused courseware designs and well-planned instructor training programs (Bonk & Dennen, 2003). Using authentic tasks enables students to immerse themselves in the culture of the academic domain, much like the apprentice tailor can be immersed in the culture of tailoring even if only being responsible for ironing the garments finished by the master tailor. Brown et al., (1989) suggest that cognitive apprenticeships can be designed that immerse students in the culture of traditional academic domains. By being immersed in such realistic contexts, "the need to learn certain repetitive or tedious skills is made evident, thus requiring less direct explanation by the teacher" (Young, 1993, p.1).

A thorough review of the literature related to the research problem has been conducted, and the criteria for the study, based upon the nine specific characteristics of authentic learning, which have been identified by Herrington and Oliver (2000) in the previous chapter, will be used as protocol for the tasks to be operationalized. Herrington and Oliver's (2000) characteristics will be operationalized in the guidelines for online instruction, in combination with Bonk and Dennen's (2003) research on Instructional Framework for Research, Design, Benchmarks, Training, and Pedagogy in Web-Based Distance Education. Each authentic task, all of which need to be considered in the design process, was operationalized and presented in table format using the following Instructional Design Framework for Online Education components:

1. Level of Web Integration
2. Instructor Role

3. Student Role
4. Pedagogical Strategies
5. Participant Interaction

Herrington and Oliver's (2000) authentic tasks will be operationalized in a table format using Bonk and Dennen's (2003) research framework. Each of the nine authentic tasks was put in table format, where the Five Components of Online Education will be specifically addressed. Each of the authentic tasks are stated in a general format, and an example of each authentic task will be described after each table, which is intended to address a specific content topic. Each table operationalized the nine authentic tasks, which are to be considered tasks that would occur over the course of a semester in a particular course.

Faculty at the School of Continuing and Professional Studies (SCPS) at UVa, call for instructional design guidance using these components when designing courses for online instruction. It is important when designing instruction that uses multimedia to consider the learner, implementation, and the interactive multimedia program as all three interact and overlap (Herrington & Oliver, 2000). These guidelines are developed for faculty at SCPS, using Herrington and Oliver's (2000) authentic tasks, in combination with the research of Bonk and Dennen (2003), where instructional frameworks for researching, designing, training, and pedagogy for developing online courses. The emphasis was to provide guidelines based upon the research, with specific examples for faculty when designing and developing authentic tasks in an online course. For example, the faculty would have a task and the guidelines would identify how it would occur in the online environment, the role of instructor and student, the pedagogical strategies, and interactions for the specific task. Thus, the components chosen from Bonk and Dennen's (2003) research were based upon the Instructional Design Framework pertaining specifically to Research, Design, and Pedagogy

components. All components utilized create guidelines for authentic tasks for a course in the online environment explicitly for the instructor.

Components of Instructional Design Framework for Online Education

Bonk and Dennen's (2003) research explored the various components of the instructional design frameworks for online education and collected and reported the data that specifically described these components. The five different components stated above are discussed in this section.

The Level of Web Integration component for the online instructional design framework, describes how the online task will be operationalized in the online environment with the different aspects of online discussion and online course management system and features. Based upon the research from the Level of Web Integration (Cummings et al., 2002), it is organized using the following categories: Online Learning Environment and Online Discussions. Cummings et al., (2002) research evaluated higher education syllabi posted to the World Lecture Hall for online instruction. This research is utilized and demonstrates how tools can be used for an online course and how each authentic task will be operationalized on the web for the instructor developing the course. In addition, I utilized the research from A Continuum of Web Integration in College Courses (Bonk, Cummings et al., 2000; Bonk & Dennen, 1999; Rowley, Lujan, & Dolence, 1998) to examine how fully particular courses use the Web and demonstrate specifically how an instructor might use the Web in their course design. There were ten distinctive levels of Web integration (Bonk, Cummings, et al., 2000), which ranged from informational or resource repository uses of the Web, for example, posting syllabi. The latter five levels specify the greater time commitment on student interaction and instructor facilitation, for example graded online discussions.

The Instructor Role was demonstrated in the table based upon the research in the Summary for the Pedagogical, Social, Managerial, and Technological Roles of the Online Instructor (Ashton et al., 1999; Berge, 1995; Bonk, Kirkley, et al., 2001; Mason, 1991). The instructor role for online instruction was divided into four dimensions of pedagogical, managerial, social, and technical. This component described the many roles of the instructor in the online environment and gave specific examples of how they could use this as a model for designing their online class. "For example, web-based tools such as asynchronous discussion forums can be used to alter traditional instructor-led discussion formats and promote student interaction, critique, and collaboration activities" (Bonk & Dennen, 2003, p. 337).

The Student Role was demonstrated based upon the research of Bonk and Reynolds (1997) Online Learning and Pedagogical Activities. Each authentic task was demonstrated where the components for the activity level of the student as Participant in the online course with regards to both Critical Thinking Activities and Collaborative Thinking Activities. This component models how the authentic task was operationalized in terms of the student's role. "By understanding how instructors can use the Web to design and enhance student social interaction, knowledge building, higher order thinking, and reflection, we can improve learning in all types of educational environments" (Bonk & Dennen, 2003, p. 338).

The Pedagogical Strategies were demonstrated by the research of Bonk and Reynolds (1997) in Online Learning and Pedagogical Activities and Online Reading and Writing Techniques (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington, 1999; Paulsen, 1995). As the growth in this area of online teaching explodes, it became important to understand various pedagogical strategies that can be used for online teaching (Dennen, 2000). This component used the research to demonstrate specific instructional strategies with respect to Critical Thinking Activities, Creative

Thinking Activities, and Collaborative Learning Activities. For example, Critical Thinking Activities could be Field Reflections and Online Case Analyses.

The Participant Interaction component was based upon research on E-Learning Communication Flow Among Instructors, Students, Practitioner/Experts (Bonk & Dennen, 2003; Cummings et al., 2002). This component uses the research to demonstrate specific examples of interactions between and among Participant, Instructor, and Practitioner/Expert. Bonk and Dennen (2000) "online interactions among key participants- participants, instructors, practitioner/experts- should be investigated and be made more explicit" (p. 335). This component was necessary, so that instructors have a model demonstrating the different types of interactions that can occur in the online environment among participants, instructor to participant, participant to content, participant to expert/practitioner, expert/practitioner to participant. For example, the instructor must provide the task, the student must participate in the task, and the practitioner/expert must provide feedback with respect to the task for the student.

"Collectively, using such frameworks as stated above, are powerful aides in tool selection and instructional design processes as well as reflection on instructional options and challenges where minimal guidelines exist" (Bonk & Dennen, 2003, p. 336). Thus, reflection upon feedback from Dr. Reeves (personal communication, August 18, 2009), expert reviewer, these guidelines are integrating frameworks such as those described above can provide powerful aides for faculty members as they reflect on the instructional challenges they face and the options they have for meeting these challenges. Whereas, minimal guidelines now exist for helping faculty members to design effective online learning environments, the proposed integrated frameworks will enable better, more informed decisions about factors such as instructional design and the selection of specific technology tools. In addition, based upon a personal conversation with Dr. Reeves, (personal communication, August 18,

2009) expert reviewer, and Dr. Moore (personal communication, August 19, 2009), advisor, a specific content area focus was chosen to demonstrate how the authentic task would be operationalized in the online environment. For each table presented, an example was accessible to specifically describe how each authentic task was operationalized in an online environment.

The guidelines for Herrington and Oliver's (2000) authentic tasks combined with Bonk and Dennen's (2003) Instructional Design Framework for Online Instruction was intended to inform instructional designers of decisions necessary to design authentic tasks for online instruction, based in the combination of this research. A summary table is provided where these guidelines can be utilized to inform instructional designers when creating authentic tasks in the online environment.

Each authentic task was operationalized specifically both in general for authentic task and specifically in the context of professionalism in bioethics. Centers for bioethics are being developed in medical schools, where teaching of medical students and residents in addition to research drives the creation of these programs. Given the current demands in higher education in the medical field to maintain relevance to the changing health care scene, and the challenges for faculty to mesh necessary content with the practice requirements of today's students, a studied re-examination of teaching strategies might result in some new approaches to the teaching of bioethics. In a discipline such as the medical field, with a strong clinical focus, bioethical discussions are critical. Students gain the skills for identifying ethical issues and grappling with them in their educational experiences. The entire preparation cannot occur within the classroom (Pinch & Graves, 2000). Thus, I discussed bioethics education with Dr. Chen (personal communication, June 29, 2009) at UVa Medical School, who is an Assistant Professor in the Department of Public Health Sciences, Department of Psychiatry, and the Center for Bioethics. She works to develop and design professional development courses for residents, which are required in their program. The Medical School at UVa is looking to design an

online experiential learning experience for medical students. We discussed the potential for online courses for residents in this school with regards to online learning offered for residents who could participate in a statewide endeavor. Professional development is now on the agenda for many medical schools and offer training and courses in professionalism to meet these needs. The focus of these tasks was with regards bioethics and professionalism in the medical program at UVa and authentic tasks with assessment that align with the assessment and evaluation standards of the medical community were discussed.

The guidelines for authentic tasks are operationalized in the online environment are written in table format, with specific examples in professionalism in bioethics, for each specific authentic task, all of which may not align with all content across all curricula. These nine tables and examples must be considered as a series of weekly activities for a semester course in professionalism in bioethics. All elements of these nine authentic tasks must be considered to create an online course in professionalism in bioethics, the nine tables and examples are not meant to be utilized in isolation. The guidelines are intended to give general processes for faculty, the example is specific to professionalism in bioethics, the illustrative module prototype is intended to provide a concrete example for how to design instruction utilizing one specific example from the guidelines. Refer to the following tables: Guidelines for Authentic Task to Provide Authentic Contexts that Reflect the way Knowledge will be used in Real Life; Guidelines for Authentic Task to Provide Authentic Activities; Guidelines for Authentic Task to Provide Access to Expert Performances and the Modeling of Processes; Guidelines for Authentic Task to Provide Multiple Roles and Perspectives; Task Guideline for Supporting Collaborative Construction of Knowledge; Guidelines to Task to Promote Reflection and Enable Abstractions to be formed; Guidelines for Task to Promote Articulation to Enable Tacit Knowledge; Guidelines for Authentic Task to Promote Coaching and Scaffolding by Teacher at

Critical Times; Guidelines for Authentic Task to Provide Authentic Assessment of Learning within Tasks; Summary of Guidelines for Instructional Designers for Authentic Tasks in the Online Environment. (Tables 6-15).

Table 6, below, will specifically describe how to operationalize the authentic task of providing authentic contexts that reflect the way knowledge will be used in real life (Herrington & Oliver, 2000) with Bonk and Dennen's (2003) Instructional Design Framework for Online Instruction. The authentic task will be operationalized with the five components of Level of Web Integration, Instructor Role, Student Role, Pedagogical Strategy, and Participant Interaction.

Table 6: Guidelines for Authentic Task to Provide Authentic Contexts that Reflect the way Knowledge will be used in Real Life

	Instructional Framework from Online Instruction Operationalized				
	Level of Web Integration	**Instructor Role**	**Student Role**	**Pedagogical Strategies**	**Participant Interaction**
Authentic Task: **Provide Authentic contexts that reflect the way knowledge will be used in real life**	**Online Learning Environment** Online Discussion Forums; Synchronous/Asynchronous Learning; **Course Management System** Sakai Substantive and Graded Online Discussions (Bonk, Cummings, et al., 2000; Bonk & Dennen, 1999; Rowley, Lujan, & Dolence, 1998)	**Pedagogical Role** Designer, of interactive learning experience Interaction-Facilitator Profession Inspirer Feedback Giver (Liu, Bonk, et. Al, 2005) **Managerial Role** Facilitator or moderator role Models or samples of work or situation; **Social Role** Online apprenticeship Teaching stories and ideas (Social Rapport Builder Organizer-Planner (Liu, Bonk, et. Al, 2005) **Technical** Assist participant; Orientation (Ashton et al., 1999; Berge, 1995; Bonk, Kirkley, et al., 2001; Mason, 1991).	**Participant** Sharing work; Participation in **Collaborative Thinking Activities** Online Apprenticeships Share experiences; reflections; sample student work **Critical Thinking Activities** Peer feedback Roles (Bonk, 1998, Bonk & Reynolds, 1997; Herrington & Oliver, 1999; Paulsen, 1995)	**Critical Thinking Strategies** Online Debates; Problem based learning task (Bonk & Reynolds, 1997) **Collaboration Activity** Online Discussion Forums; Peer Feedback Tools; Orientation (Ashton et. al, 1999; Berge, 1995; Bonk, et al., 2001, Mason, 1991)	**Participants** Online Discussion Forums, Samples of work, peer discussions; Small and Large group **Instructor** Provide Context; Discussion Forums; Virtual team meetings; Professional meetings **Practitioners/ Experts** Online apprenticeship, Online Feedback, Online information (Cummings, et al., 2002)

Example: Medical School Online Education

Beginning in 1995, there have been a growing number of attempts to use the Internet to deliver continuing medical education to physician. During the twentieth century, as more adults wanted to increase their work-related skills, the number of schools and the number of students increased. In addition, research in the medical field has shown that lecture-based meetings and conferences are not effective in changing physician performance (Sklar, 2001). Davis et al., (1999) state that there is evidence that interactive professional development sessions that enhance participant activity and provide the opportunity to practice skills can change in professional practice whereas didactic sessions do not appear to be effective in changing physician performance. Techniques that are effective in changing physician performance are case discussion, role-play, or hands-on practice sessions are more effective changing physician performance. For this example, authentic contexts that reflect the way knowledge is used in real life is operationalized in an online environment as participants in a medical school program participate in their state-wide residency program. A situated learning environment provides an authentic context that reflects the way the knowledge will be used in real life, that preserve the full contexts of the situation (Brown, Collins & Duguid, 1989; Brown & Duguid, 1993; Collins, Brown, and Newman, 1989; CTGV, 1990, 1993a, 1993c). After discussing this with Dr. Chen (personal communication, July 2, 2009) from the Medical School program at UVa, the medical online apprenticeship will provide authentic contexts are provided by the instructor in an online environment, where discussion forums, learning activities, assignments, and are implemented in a course management system, UVaCollab (Sakai). This is the course management system for the university, and allows collaboration for non-UVa members in the sites. This will allow for accessibility for other participants such as practitioners in the field to easily participate. The course

will occur in the online learning environment of UVaCollab, where there are resources, readings, assignments, discussion forums (asynchronous) and live discussion forums. The course will combine both synchronous and asynchronous instruction in this environment. Each session will be recorded and accessible in Blackboard. All content will be developed and designed with the instructional designer and the content expert in the field of medicine, to ensure consistency with the needs of the program. Instructor/Practitioner-participant and participant-participant interaction will occur in the Discussion Forums both asynchronous and synchronous.

The session will be adapted from ethical and professional development concepts from experiences in the field of medicine. The session will be developed as a course in UVaCollab, course content and resources will be organized in the following formats: powerpoints, word documents, and PDFs, videos/podcasts. In addition, sessions will be available and recorded in Elluminate Live, a synchronous learning tool, which requires an application Java, which must be downloaded to view and listen to the sessions. Formative evaluation of the course will occur during the pilot testing of this course, where participants are asked to complete a Follow Up survey after each session in the module. This information and feedback will be collected and analyzed and shared with the faculty of this program. Recommendations will be made to make improvements for the module before implementing with all faculty members upon approval.

"The context must be all embracing, to provide the purpose and motivation for the use of the program and to provide a sustained and complex learning environment that can be explored at length" (Herrington & Oliver, 2000, p.5). The instructor designs the learning experience where residents for the medical school can meet and discuss their experiences with regards to ethics and professionalism based upon their apprenticeship in the field from various remote locations, which provides the context. The instructor creates and facilitates online course discussions. For the asynchronous

component, the instructor would post specific questions about research articles in the field of medicine with the focus on professionalism or ethical decision-making strategies. These would be required and graded for substantive comments. A rubric for substantive comments would be provided in the online course for participants. Bioethical dilemmas, once rare, are now commonplace because new medical technologies have outpaced our ability to understand their implications. For example, in a discipline such as nursing, with a strong clinical focus, bioethical discussions are critical. Students gain the skills for identifying ethical issues and grappling with them during their education experiences (Guyer et al., 2000). Educators emphasize "student involvement and relevance to practice during ethics education, where bioethical dilemmas are discussed" (Pinch & Graves, 2000, p. 710). An example is using the research of the Vath et al., (2004) in a Bioethics LEGACY Challenge, in a high school Biology classroom, where students were presented with a scenario as being a member of the board of directors working to submit a proposal. The ethical dilemma is that they need organ donors to do the research. It is a problem-based approach, where the bioethical reasoning ability is measured based on how they justify a certain decision. According to Epstein and Hundert's (2008) definition of professional competence, this is cognitive assessment in abstract problem solving.

A demonstration of how this can be facilitated in a synchronous online session, is where the instructor poses a scenario and asks the group how they might handle a certain dilemma, based upon specific professional or ethical criteria from the field of medicine. This question and provides situations that model practical situations in the medical field and is used to facilitate discussion. The instructor acts as session manager, and breaks participants into small groups in breakout rooms in the online synchronous sessions. After the small group discussion, small groups make summaries of their discussions and present to the large group. The instructor or practitioner/expert shares stories

and scenarios of experiences in the field and provides feedback, encouragement, and inspiration. In addition, the instructor works to build social rapport for the online professional community. Student responds to instructor, practitioner/expert, and peers in the online forums and debates. For example, a small group may have reached a conclusion about how to handle a specific scenario in an ethical or professional way, depending upon the question presented. The instructor and practitioner/expert interact in online forums and debates with students. They encourage all group members to participate and engage in the online forum. Participants are expected to participate in the discussion by sharing their ideas, presenting their strategies, and asking questions in this session. The instructor and expert/practitioner interact and debate the issue a professional online environment that builds an organized community where issues and themes emerge in these discussions and problems are discussed and addressed. The session will be developed in the same format as stated above, in UVaCollab, a collaborative course management system available at UVa. All course content will be available and accessible for all participants, experts, and practitioners. The synchronous social network learning tool, Elluminate, is integrated in UVaCollab.

Table 7, below, will specifically describe how to operationalize the authentic task of providing authentic activities (Herrington & Oliver, 2000) with Bonk and Dennen's (2003) Instructional Design Framework for Online Instruction. The authentic task will be operationalized with the five components of Level of Web Integration, Instructor Role, Student Role, Pedagogical Strategy, and Participant Interaction.

Table 7: *Guidelines for Authentic Task to Provide Authentic Activities*

Instructional Framework from Online Instruction Operationalized					
	WebIntegration	**Instructor Role**	**Student Role**	**Pedagogical Strategies**	**Participant Interaction**
Authentic Task: **Provide authentic activities**	**Online Learning Environment** Course management system for delivery **Tasks in online environment** synchronous and asynchronous **Discussion Board** Graded for Substantive Comments **Project Presentation** Synchronous online presentation in small groups (Bonk, Cummings, et al., 2000; Bonk & Dennen, 1999; Rowley, Lujan, & Dolence, 1998)	**Pedagogical role** Facilitator or moderator; Identifying themes for discussions; **Managerial Role** Designing Assignments; assign groups and teams; **Social Role**, create a professional community environment; Apprenticeships with specific task; e-fieldtrips; internship Interpersonal outreach; Present clear expectations; **Technical Role,** assist participants with technology issues, send announcements when Sakai is down (Ashton et al., 1999, Berge, 1995; Bonk, Kirkley, et al., 2001; Mason, 1991). **Project Presentation** Facilitate & Grading (Epstein & Hundert, 2008)	**Participant** Asynchronous/ synchronous Online Forum discussions **Collaborative Thinking Activities** Coordinator/Leader Peer/Practitioner Online Forums **Critical Thinking Activities** Summarizer, Secretary or Scribe In team/peer Online Forums (Bonk, Wisher, & Lee, 2004) **Project Presentation** Collaborate with small group and present their project using the Dimensions of Professional Competence Criteria for their specific case study (Epstein & Hundert, 2008)	**Critical-Thinking Activities**, Task based upon activity from experience in field; Online Case Analyses Cases, Instructor generated cases (Bonk, 1998; Oliver, Omari, & Herrington, 1998; Paulsen, 1995) **Collaborative Activities**, Large and small group online discussions; Online Role Play; (Bonk & Reynolds, 1997). **Project Presentation** Presentation must address all criteria in Dimensions of Professional Competence (Epstein & Hundert, 2008)	**Participants** Online Discussion Forums synchronous/asynchronous Large and small group Link sharing; peer commenting **Instructor** Syllabus Model or Case Task Feedback **Practitioners/Experts** Online apprenticeships, Online feedback Online mentoring **Project Presentation** Online discussion and feedback (Cummings, et al., 2002)

Example: Medical School Online Education

Merriam (1996), in a review of adult learning theories for the health professions, finds " a number of implications for the education of health professionals to be self-directed learners. There has been a marked movement from the teacher-centered model of how adults learn to a learner-centered model." There has also been an emphasis on situated learning and authentic tasks. Skylar, (2001), states that "this model has been felt in continuing medical education as well…The implication is that the more significant the learning is that which is situated in the context of the adult life, in authentic activity" (p. 13).

This example will operationalize authentic activities in an online environment for students who are participants in a medical school statewide residency program. A situated learning approach with authentic activities to the design of interactive multimedia would have learners exploring resources with all the complexity and uncertainty of the real world. The learners would have a role in determining the task and how it might be broken up into smaller tasks, selecting which information is relevant, and finding a solution that meets their needs (Herrington & Oliver, 2000). The online environment would be the same as stated in the first example. The course will occur in the online learning environment of UVaCollab, where there are resources, readings, assignments, discussion forums (asynchronous) and live discussion forums. Participants work together in an online course as part of a residential experience in the field. Fox and Bennett (1998) identify models of physicians' practice-based learning which are self-directed. In this example, the model would be addressing the first stage where "the learning is directed toward understanding and estimating personal levels of need to learn in order to adopt a change in practice" (p. 12). The instructor role would be to create the case or scenario, where professionalism in the field is the underlying theme with regards to a scenario that would be appropriate in the field of medicine. The instructor would implement the

pedagogical online activities and as organizer and planner for the session. The participants would have been asked to read and review a case, which would directly relate to a specific scenario that the residents would have experienced in the field, using the Dimensions of Professional Compentence (Epstein & Hundert, 2008). The instructor would organize small groups or teams in a synchronous online discussion, where the participants would be asked a few specific questions to address or issue to solve relating to the case or scenario in the online environment. For each team, roles would be assigned. The instructor would listen in each small group and ask each group to provide a summary of the strategies and discussion. The groups would come together in a large synchronous discussion, where the instructor would serve as the interaction-facilitator for the discussion. They would also relate teaching stories that would be appropriate in that situation. The instructor would work to build rapport among students and inspire students in the area of professionalism in the field of medicine. The student role would be for student's to react to the case or scenario as they were experiencing this as professionals. In this self-directed learning model, the learner identifies and utilizes resources drawn from colleagues and coworkers, material resources (cases) (Fox & Bennett, 1998). The culminating activity would be a project where each group would have to present their case and strategies and solutions that they decided upon, with respect to the dimensions of professional competence. Specifically, they would address the cognitive, technical, integrative, contextual, relationship, affective/moral, and habits of mind criteria in each presentation.

Table 8, below, will specifically describe how to operationalize the authentic task to provide access to expert performances and modeling of processes (Herrington & Oliver, 2000) with Bonk and Dennen's (2003) Instructional Design Framework for Online Instruction. The authentic task will be operationalized with the five components of Level of Web Integration, Instructor Role, Student Role, Pedagogical Strategy, and Participant Interaction.

Table 8: *Guidelines for Authentic Task to Provide Access to Expert Performances and the Modeling of Processes*

	Instructional Framework from Online Instruction Operationalized				
	Level of Web Integration	**Instructor Role**	**Student Role**	**Pedagogical Strategies**	**Participant Interaction**
Authentic Task: **Provide access to expert performances and the modeling processes**	**Online Learning Environment** Course management system for delivery; Delivery of expert panel discussion in podcast form **Tasks in online environment** Online Participation in virtual debate and discussion, peer comments or expert/practitioner comments **Online Discussions** Graded for Substantive Comments (Bonk, Cummings et al., 2000; Bonk & Dennen, 1999; Rowley, Lujan, & Dolence, 1998) **Access to Practitioners/Experts in Course** (Cummings et al., 2002)	**Pedagogical role** Interaction Facilitator Online Discussion Forums; Model; Instructional Designer; Feedback giver (Liu, Bonk, et al., 2005) **Managerial Role** Assign and manage teams Organizer (Liu, Bonk et al., 2005) **Social role** Create Community environment online Display empathy and interpersonal outreach;	**Participant** Virtual Professional Development exploration and community **Critical Thinking Activities** Participate in questions/answers from expert panel discussion; discuss reflections with practitioner/expert. (Cummings et. al, 2002)	**Critical Thinking Activities** Field Reflections; Resource evaluations Research ethical Issues (Bonk & Reynolds, 1997) **Collaborative Activities** Expert Panel Electronic Mentor (Bonk & Reynolds, 1997)	**Participants** Field Reflections, Reflection from podcast (expert) Student-Generated Case **Instructor** News from discipline/field, podcast from experts **Practitioner/Experts** Online apprenticeships, Online feedback Online mentoring (Cummings, et al., 2002)

Example: Medical School Online Education

Fox and Bennett (1998) refer to another model called *organizational learning*. They note that doctors also learn from their work with patients, on teams with other healthcare professionals, and in consultation with colleagues. They also conclude that continuing medical education providers will need to offer high quality individual and group education that provides authoritative information, knowledge, and skills based on expertise and evidence.

Situated learning environments provide access to expert performances and the modeling of processes, allowing students to observe the task before it is attempted. The implication of this for the design of multimedia instruction is that video (podcast) inserts of expert performances are feasible and effective (Herrington & Oliver, 2000). For this example, access to expert performances and the modeling of processes, is operationalized by the instructor providing access to practitioners and experts in the field. The session would be in the course located in the UVaCollab course management system (CMS), as stated in the above examples. The course will occur in the online learning environment of UVaCollab, where there are resources, readings, assignments, discussion forums (asynchronous) and live discussion forums. This CMS has the accessibility for authentication for non-UVa logins, and it would be accessible for experts/practitioners. In addition, the synchronous social learning tool, Elluminate, is integrated in UVaCollab. The instructor would design the topic for the expert/practitioner panel discussion. The expert/practitioner would model the processes and professional discourse in the field. The panel discussion could happen in podcast format, where experts in the field would participate from around the world. The instructor would facilitate the panel discussion in either the live or video podcast around a specific topic in Bioethics. How experts or practitioners apprentice novice learners in developing new skills through the use of authentic learning experiences and timely exposure to cultural practices (Lave, 1991). After listening to the video

podcast with panel experts that they would share with the practitioner/expert in a large group online discussion. Next, pedagogical strategies implemented and designed by the instructor would require all participants to generate a Student-Generated Case regarding a specific ethical or professional situation. The Student –Generated case have students generate a number of cases during the semester or job-related experience (Bonk & Reynolds, 1997). The participants would then pose their scenario and the practitioner/experts would share stories and give feedback. Instructor/practitioner/experts would model the processes of how they would handle the scenarios. Each participant would then reflect in a private online journal integrated in UVaCollab. The practitioner/expert would model processes and strategies in the field by giving each participant feedback. In accordance with Epstein and Hundert's (2008) definitions and assessment for professional competence, assessment would be integrative in the dimensions of professional competence. Participants would use clinical reasoning strategies, in peer and expert/practitioner interactions and reflections. They could view specific surgical/procedural technical skills for professional competence in the podcasts. In addition, they would be assessed for professional competence in the cognitive dimension, as they would use resources by publishing their cases, therefore learning by experience, and applying knowledge to real-world situations.

Table 9, below, will specifically describe how to operationalize the authentic task to provide multiple roles and perspectives (Herrington & Oliver, 2000) with Bonk and Dennen's (2003) Instructional Design Framework for Online Instruction. The authentic task will be operationalized with the five components of Level of Web Integration, Instructor Role, Student Role, Pedagogical Strategy, and Participant Interaction.

Table 9: *Guidelines for Authentic Task to Provide Multiple Roles and Perspectives*

	Instructional Framework from Online Instruction Operationalized				
	Level of Web Integration	**Instructor Role**	**Student Role**	**Pedagogical Strategies**	**Participant Interaction**
Authentic Task: **Provide multiple roles and perspectives**	**Online Learning Environment** Web as alternate delivery system for residential students, instructors, practitioner/experts; entire course located on web for participants located anywhere **Online Discussions** Participants discuss work or communicate with peers, practitioners, instructor, experts in their course; substantive and graded web discussions **Provide Multiple Roles and Perspectives** Generate resources, online setting, exemplary group products (Bonk et al, 2000; Rowley, Lujan & Dolence, 1998)	**Pedagogical Role** Facilitate Online Forums with Practitioner/Experts; Instructional Designer, Profession Inspirer; Interaction Facilitator **Managerial Role** Organizer, Online Discussion Manager, Organize assignments, track participant work and portfolios for work **Social Role** Social Rapport developer and maintenance; Community feel **Technical Role** Technical coordinator (Liu, Bonk et. al, 2005; Ashton et al., 1999; Berge, 1995; Bonk, Kirkley et al. 2001; Mason 1991)	**Participant** Field Reflections and commentary, Professional Online discussion and interactions **Critical Thinking Activities** Samples of prior work in Portfolios with peer commenting and feedback (Bonk & Reynolds, 1997)	**Critical Thinking Activities** Field reactions Instructor/Practitioner/ Student Online discussion/debate **Creative Thinking Activities** Topical Discussions **Collaborative Activities** Structured Controversy Symposia: Expert Panel Discussions (Bonk & Reynolds, 1997)	**Participants** Research topic; Collect Field Reactions and Reflections for panel discussion **Instructor** Topic Selection for Critical/Creative/Collaborative Activities **Practitioner/Expert** Guest Experts to discuss the topic and experiences in a synchronous online discussion (Bonk, 1998; Bonk & Reynolds, 1997; Herrington & Oliver, 1999; Paulsen, 1995)

Example: Medical School Online Education

Acceptance into the community of practice is importance but this can be separated, conceptually at least, into a social acceptance, which might be extended to any student and any professional acceptance, which relies on the display of appropriate competence. Cognitive apprenticeship strategies can be useful in a community of practice where mentoring techniques are utilized (Cope et al., 2000). Wenger (1998) argued that to learn real-world skills, a successful educator should be able to push the interactions beyond the boundary of a learning community to other communities of practice. Research in the medical field on education for bioethics showed that in general, students want opportunities to discuss ethical issues during their clinical experience. Some students encountered moral distress and ethical issues in their own clinical or residential experience because they were uncertain where to go for guidance due to preceptors for fear of low grades, poor evaluations and other academic consequences (Perlman, 2009).

For this example, provide multiple roles and perspectives, is operationalized as the instructor of the course creates a topic in the bioethics for all residents to explore, research and reflect upon in the online course in the course management system UVaCollab. The course will occur in the online learning environment of UVaCollab, where there are resources, readings, assignments, discussion forums (asynchronous) and live discussion forums. There is a discussion board forum, where asynchronous discussions related specifically to research are addressed. The instructor also assigns a task in a blog/journal for each resident in this environment, to collect field data and reflections about specific bioethical situations that occur in their experience in remote sites. This research will be utilized in a culminating activity in debate topic at the end of the course. The instructor works to give each participant feedback and encouragement in this blog/ journal. The role of *professional inspirer* has important implications for professional online educators. Adult learning theory suggests that

adult learners come to an online environment with a task-centered orientation and are more ready to learn when experiencing authentic or real life situations (Knowles, 1996). At the end of the course, the students and Practitioner/Experts are invited to participate in a synchronous online debate, in Elluminate Live, in the form of a structured controversy (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington, 1998). One team of students is assigned a pro side on the research issue that was researched throughout the semester. The two teams then switch roles, engage in the formal discussion and take other position in the debate. The Practitioner/Experts make the decisions, and make recommendations about this constructive controversy, with specific references to the literature and practice.

Assessment, as defined by Epstein and Hundert (2008), would align with the competencies for professional development in the medical field in the dimensions of professional competence of relationship, as communication skills, handling conflict, teamwork, and teaching others. The cognitive competency would also be assessed as in the debate where knowledge must be applied to real world situations and problem solving. The integrative competency would be assessed as through these debates, the participant would need to incorporate scientific, clinical, and humanistic judgment and clinical reasoning strategies would need to be demonstrated appropriately. The synchronous and asynchronous learning environments are both integrated into the course on UVaCollab. All materials are organized and listed in this environment. Practitioner/Experts have access to the synchronous sessions. The online debate is recorded in the synchronous environment, so that it can be utilized for future courses.

Table 10, below, will specifically describe how to operationalize the authentic task to support collaborative construction of knowledge (Herrington & Oliver, 2000) with Bonk and Dennen's (2003) Instructional Design Framework for Online Instruction. The authentic task will be

operationalized with the five components of Level of Web Integration, Instructor Role, Student Role, Pedagogical Strategy, and Participant Interaction.

Table 10: *Task Guideline for Supporting Collaborative Construction of Knowledge*

	Instructional Framework from Online Instruction Operationalized				
	Level of Web Integration	**Instructor Role**	**Student Role**	**Pedagogical Strategies**	**Participant Interaction**
Authentic Task: **Support collaborative construction of knowledge**	**Online Learning Environment** Entire course on Web for students, instructors, practitioner/experts located anywhere Course fits in with larger programmatic Web initiative **Online Discussions** Small and large groups meet in synchronous learning environment to do task (Bonk, Cummings, et a., 2000; Bonk & Dennen, 1999; Rowley, Lujan, & Dolence, 1998)	**Pedagogical** Design Instructional Activities Facilitate, weave, identify themes small/large group discussions to provide feedback and encouragement **Social** Create safe environment for students to discuss their experience **Managerial** Assign small groups; Set deadlines; Clear expectations for criteria for assignment **Technological** Communicate technology issues; Demonstrate how groups can set up and record their own sessions (Ashton et al., 1999; Berge, 1995; Bonk, Kirkley, et al., 2001; Mason, 1991)	**Participant** Small/large group online discussions; Peer comments **Critical Thinking Activities** Field Reflection writing **Collaborative Thinking Activities** Creation of Student-Generated Cases (Bonk & Reynolds, 1997)	**Critical Thinking Activities** Experiential Reflections; Reading Reactions; Summary Writing; Online Case Analyses **Collaborative Thinking Activities** Cases: Student-Generated Cases (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington, 1999; Paulsen, 1995)	**Participant** Case Generation Experiential Reflections Online Group Discussions **Instructor** Individual/Small Group/Large Group Online feedback, commentary **Practitioner/Expert** Small group online discussion regarding cases; creating a learning community (Cummings et al, 2002; Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari & Herrington, 1999, Paulsen, 1995)

Example: Medical School Online Education

The learner-centered principles are heavily influenced by recent research on how technology tools, cultural artifacts, and instructional practices in one's learning environment influence learning. Utilizing more practitioners and experts in the field is effective as they can apprentice students with timely insights and scaffolding (Bonk & Cunningham, 1998). An example of an authentic task designed to support collaborative construction of knowledge will be Student-Generated cases in the online environment. The task is integrated in the course on UVaCollab online environment. The course will occur in the online learning environment of UVaCollab, where there are resources, readings, assignments, discussion forums (asynchronous) and live discussion forums. The participants have had previous experience with Instructor-Generated Cases on the topical issues of bioethics in medical education. The students generate a set number of cases during the semester, based upon rotation related experiences to a set number of peer cases (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington, 1998; Paulsen, 1995). Williams (1992) points out that the benefits of case-based instruction can be achieved in environments that situated learning in authentic contexts. Students create these cases utilizing their Field Experiences and work in small groups in Elluminate Live to discuss their cases. All meetings are recorded, so that the instructor can monitor progress. The instructor provides the template and criteria for these cases. Each small group posts their case in UVaCollab so that other small groups can view their case. Each small group must therefore construct their own case, based upon their experience, while incorporating the criteria from the instructor. The instructor and expert/practitioner work with each small group to provide support and guidance in weekly synchronous online meetings in Elluminate Live. Students work to construct their own knowledge through case construction. This provides students the opportunities to discuss ethical issues during their rotation/clinical experiences. "It will provide the students the opportunity

to interact with their peers, practitioners/experts, researchers in the medical field while at the same time demonstrate the complexity of the clinical environment"(Perlman, 2008, p. 12).

Assessments which align with the needs for professional competency as defined by Epstein and Hundert (2008), which are addressed are in the cognitive dimension, as there is self-directed acquisition of new knowledge, generating questions, using resources, and learning from experience by building student-generated cases. Integrative level of professional competence would occur, as students would link basic and clinical knowledge across disciplines. The habits of mind dimension would be assessed, as students would observe their own thinking, emotions, and techniques with peers, practitioners/experts in the field.

Table 11, below, will specifically describe how to operationalize the authentic task to promote reflection and enable abstractions to be formed (Herrington & Oliver, 2000) with Bonk and Dennen's (2003) Instructional Design Framework for Online Instruction. The authentic task will be operationalized with the five components of Level of Web Integration, Instructor Role, Student Role, Pedagogical Strategy, and Participant Interaction.

Table 11: *Guidelines of Task to Promote Reflection and Enable Abstractions to be Formed*

	Instructional Framework from Online Instruction Operationalized				
	Level of Web Integration	**Instructor Role**	**Student Role**	**Pedagogical Strategies**	**Participant Interaction**
Authentic Task: **Promote reflection to enable abstractions to be formed**	**Online Learning Environment** Course management system, UVaCollab (Sakai); Entirely on Web for residents located anywhere **Online Discussions** Synchronous discussions in online environment Students, Instructors, Practitioner/Experts have course activities and communication in online environment (Bonk, Cummings, et al., 2000; Bonk & Dennen, 1999; Rowley, Lujan, & Dolence, 1998)	**Pedagogical** Facilitator of online large group discussions; Elicit and model reflection; Offer constructive criticisms; Push to articulate ideas Online Mentoring **Social** Create and foster a community environment; Exhibit a positive tone; Display empathy and outreach **Managerial** Coordinate and grade assignments; assign partners; clarify grading; clarify components of grading rubrics **Technical** Assist participants with technical issues such as Elluminate Live; Notify participants of problems solutions (Liu, Bonk et. al, 2005); (Ashton et al., 1999; Berge, 1995; Bonk, Kirkley et al., 2001; Mason 1991)	**Participant** Field Reflections; Sample student work; Peer interaction **Critical Thinking Activities** Field Observations Reactions and Reflections; peer evaluation **Collaborative Thinking Activities** Course discussions and reflections **Creative Thinking Activities** Link sharing; peer commenting (Bonk & Dennen, 2003; Cummings et al., 2002)	**Critical Thinking Activities** Summary writing based upon Field Reflections; Reading reactions; Analyses of generalizations made **Collaborative Thinking Activities** Electronic Mentors; Critical/Constructive Online discussions based upon reading reaction where abstractions must be formulated based upon the readings **Creative Thinking Activities** Online Explorations and readings (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari & Herrington, 1999; Paulsen, 1995)	**Participant** Individual Observations and Reflections **Instructor** Post issues or questions for student reaction and reflection **Practitioner/ Expert** Private Online diary as online mentor (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington, 1999; Paulsen, 1995)

Example: Medical School Online Education

"Research on medical education emphasizes the need to listen to student experiences as part of the process of teaching ethics" (Osborne & Martin, 1980, p. 37). Medical professionals need more opportunities for ethical reflection. An online discussion for agency or organizational staff could serve many of the same purposes of a class activity: "discussion at leisure, exposure to a variety of perspectives, and opportunity for everyone to share views and resources, not just the more outspoken individuals" (Pinch, Graves, 2000, p. 710). The course will occur in the online learning environment of UVaCollab, where there are resources, readings, assignments, discussion forums (asynchronous) and live discussion forums. In this example, the guidelines to promote reflection and enable abstractions to be formed as an authentic online task are operationalized. A situated learning environment promotes reflection to enable abstractions to be formed (Brown, Collins & Duguid, 1989; CTGV, 1990; Collins, 1998; Collins, Brown & Newman, 1989; Resnick, 1987). In order to complete a task, the student would be required to "reflect upon the whole resource by predicting, hypothesizing, and experimenting to produce a solution"(Herrington & Oliver, 2000, p.6). The task would be part of a course in the UVaCollab course management system, where online discussions would occur both synchronously and asynchronously. The instructor role would be to provide a specific task where students would observe, journal, and reflect upon their Field Experiences. The specific task would be to have students keep a private journal with both instructor and practitioner/expert feedback in a blog. The practitioner/expert would probe each student individually for ways to address the situation, problem, or issue. Each participant would then be partnered in a discussion board forum, where they would discuss issues that had arisen and been discussed with their practitioner/expert. A large group discussion would occur in a synchronous environment, where the instructor would facilitate a discussion and look for emerging themes. The student role would be

to observe, written journals and reflection upon their own thought processes in conjunction with the practitioner/expert as well as their peer partner. Students have interaction with the instructor, peers, practitioner/expert, and their own experiences in the field.

Assessment, as aligned with professional competence in the medical field (Epstein & Hundert, 2008), would be implemented in the cognitive dimension, as knowledge would be applied to real world situations, self-directed acquisition of new knowledge, generating questions, and learning from experience. The integrative component of assessment would be implemented as hypothetico-deductive, pattern-recognition, and elaborated knowledge would be demonstrated as part of the observation, journal, and field experiences and reflections. The habits of mind competency would be implemented, as observations of one's own thinking, emotions, techniques, and recognition of response to cognitive and emotional biases would be demonstrated in the journal, field experiences, and blog.

Table 12, below, will specifically describe how to operationalize the authentic task to provide promote articulation to enable tacit knowledge (Herrington & Oliver, 2000) with Bonk and Dennen's (2003) Instructional Design Framework for Online Instruction. The authentic task will be operationalized with the five components of Level of Web Integration, Instructor Role, Student Role, Pedagogical Strategy, and Participant Interaction.

Table 12: *Guidelines for Task to Promote Articulation to Enable Tacit Knowledge*

	Instructional Framework from Online Instruction Operationalized				
	Level of Web Integration	**Instructor Role**	**Student Role**	**Pedagogical Strategies**	**Participant Interaction**
Authentic Task: **Promote articulation to enable tacit knowledge to be made explicit**	**Online Learning Environment** Entire Course on the Web for Students Located Anywhere Student Generated Resources Published on the Web Student explorations of Web Resources **Online Discussions** Substantive and Graded Web activities Synchronous and asynchronous (Bonk, Cummings et al., 2000; Bonk & Dennen, 1999; Rowley, Lujan, & Dolence, 1998)	**Pedagogical** Facilitator Role; Encourage Student Knowledge Building; Summarize Discussions; Push to articulate ideas and explore resources; Provide elaboration **Social** Create Community feel; Exhibit positive tone **Managerial** Coordinate assignments, assign groups; Present clear expectations **Technical** Assist participants with technology issues (Ashton et al., 1999; Berge, 1995; Bonk, Kirkley, et al., 2001; Mason, 1991)	**Participant** Peer commenting; Field Reflections and Observations (Cummings et al., 2002) **Critical Thinking Activities** Course Discussion **Collaborative Thinking Activities** Virtual Debate information (Cummings et al., 2002)	**Critical Thinking Activities** Online Case analysis **Collaborative Thinking Activities** Structured Controversy and Debate (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington, 1999; Paulsen, 1995)	**Participant** Web explorations and readings; Structured controversy **Instructor** Post readings; Post controversy for debate **Practitioner/ Expert** Debate co-moderator (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington, 1999; Paulsen, 1995)

Example: Medical School Online Education

Decision-making in bioethics occurs when an individual our group of individuals confronts a bioethical dilemma that requires a choice be made between two or more seemingly conflicting outcomes (Vath, 2004). A situated learning environment promotes articulation to enable tacit knowledge to be made explicit (Bransford, et al., 1990; Collins, 1988; Collins, Brown & Newman, 1989; Herrington & Oliver, 2000). Lave and Wenger (1991) point out that being able to speak the vocabulary and tell the stories of a culture of practice is fundamental to learning. A situated learning environment would ensure that the interactive multimedia resource is used within a social context, with students working in groups, discussing the issues, reporting back, presenting findings, interviewing and debating the issues, to ensure that students have the opportunity to articulate, negotiate and defend their knowledge (Herrington & Oliver, 2000).

For this example, promote articulation to enable tacit knowledge to be made explicit is operationalized in the online learning environment of UVaCollab. The course will occur in the online learning environment of UVaCollab, where there are resources, readings, assignments, discussion forums (asynchronous) and live discussion forums. The instructor would require students to post their individual field observations and reflections weekly in an assignments folder. The instructor would then have a readings folder, and would assign readings from this folder. An asynchronous discussion forum would be organized for peer partner discussions about readings and field experiences. The instructor would post a topic of controversy and the peer partners would be assigned roles and they would have a debate in a synchronous online environment. Each debate would be attended by all students, instructors, and practitioner/experts and would relate to a specific topic of controversy in bioethics in a synchronous online environment. The instructor and practitioner/expert would encourage more sophisticated ethical reasoning strategies. In order for an individual to arrive at a

decision regarding a dilemma of this kind, the student will have to engage in some type of reasoning strategy to make clear what kinds of things will be considered and valued in making this decision. Ethical reasoning strategies fall under three categories: Ends-based; Rule-based; Care-based (McQuaide et al., 1999). Before each debate, the peer partner must meet with the instructor to determine which reasoning strategies will be utilized. The peer partners are asked to present their final decision using a powerpoint presentation in the asynchronous learning environment. All presentations must contain well-supported claims and should be professionally constructed. After each debate, the instructor and expert/practitioner would debrief with the large group to discuss the reasoning strategies and make connections to research articles from the weekly reading assignments.

Assessment of professional competence (Epstein & Hundert, 2008), would be implemented in the cognitive domain, as core knowledge, information management, applying knowledge to real world situations, using tacit knowledge and personal experience, and abstract problem solving would be demonstrated in the online debates and discussions.

Table 13, below, will specifically describe how to operationalize the authentic task to promote coaching and scaffolding by teacher at critical times (Herrington & Oliver, 2000) with Bonk and Dennen's (2003) Instructional Design Framework for Online Instruction. The authentic task will be operationalized with the five components of Level of Web Integration, Instructor Role, Student Role, Pedagogical Strategy, and Participant Interaction.

Table 13: *Guidelines for Authentic Task to Promote Coaching and Scaffolding by Teacher at Critical Times*

	Instructional Framework from Online Instruction Operationalized				
	Level of Web Integration	**Instructor Role**	**Student Role**	**Pedagogical Strategies**	**Participant Interaction**
Authentic Task: **Promote coaching and scaffolding by the teacher at critical times**	**Online Learning Environment** Course Management System UVaCollab; Entire Course on Web for students, instructors; practitioner/experts anywhere **Online Discussions** Substantive and Graded Web activities Synchronous and asynchronous (Bonk, Cummings et al., 2000; Bonk & Dennen, 1999; Rowley, Lujan, & Dolence, 1998)	**Pedagogical** Facilitator and Moderator Role; Elicit reflection; Offer Constructive Criticism; Design Instructional strategies **Social** Create community feel; personalize communication; Online stories **Managerial** Coordinate assignments; assign groups; clarity grading **Technical** Assist participants with technology issues in UVaCollab (Ashton, et al., 1999; Berge 1995; Bonk, Kirkley et al., 2001; Mason 1991)	**Participant** Online Readings **Critical Thinking Activities** Online Discussions; Peer Commenting **Collaborative Thinking Activities** Online Group Discussions about research topics (Cummings et al., 2002)	**Critical Thinking Activities** Online Case Analysis **Collaborative Thinking Activities** Jigsaw and Group Problem Solving (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington, 1999; Paulsen, 1995)	**Participant** Online group discussions; Research literature review and readings **Instructor** Post readings; Divide students into groups; Assess discussion **Practitioner/ Expert** Provide feedback (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington, 1999; Paulsen, 1995)

Example: Medical School Online Education

Ethics educators indicate that health professionals will become the main human resources for ethics consultation and ethical decision-making and therefore it makes sense to simulate ethics consultations in order to acclimatize students to their function (Fletcher et al., 1997). Situated learning sees the teacher's role in coaching by observing student, offering hints and reminders, providing feedback, scaffolding and fading, modeling as integral to the learning situation (Herrington & Oliver, 2000).

Online learning environments need to be designed around authentic and engaging anchors, and teacher and/or the curriculum need to support learning by taking on the role of *coach*. This role is defined as being able to provide students with metacognitive support as well as appropriate scaffolding as they engage in the online authentic task (Torp & Sage, 1998).

For this example, promoting coaching and scaffolding is operationalized in the online environment by presenting bioethical content within the context of an authentic challenge. Through scaffolding and case-study activities, the students are given opportunities to engage in bioethical reasoning strategies. With the support of the teacher and practitioner/expert as *coach*, students can have develop a broader sense of what it means to engage in bioethical decision-making, and discover that it is more than simply finding the answer to a problem (Vath et al., 2004). The course will occur in the online learning environment of UVaCollab, where there are resources, readings, assignments, discussion forums (asynchronous) and live discussion forums. The instructor assigns groups in a synchronous online sessions, a book is assigned in the topic of bioethical reasoning. Articles are located in the research section. Each member is assigned a specific chapter in the book. Students discuss the ideas and summarize the research flaws and confounds in a synchronous large group meeting session. The instructor meets with the small groups to provide

guidance, feedback, and observations. This activity is modeled after an activity prior to this in this course, where students have experienced the research topics and discussions in the course. Each group provides a presentation, in a synchronous online meeting session, using powerpoint presentation with specific components matching the chapter in the book. It is important to address the content within the context of the relevant science and research, and not separate. In doing so, the learner becomes better prepared to identify ethical implications in novel situations (Bransford, Brown & Cocking, 2000).

Assessment of professional competence (Epstein & Hundert, 2008), would be implemented in the cognitive domain, as students would generate questions, use resources, and learn from their experiences by studying case studies and topics assigned in bioethical reasoning. The dimension of context would be the clinical setting in the case studies. The dimension of relationship, where communication skills, handling conflict, teamwork, and teaching others would be assessed from the practitioner/expert as *coach*.

Table 14, below, will specifically describe how to operationalize the authentic task to provide authentic assessment of learning within tasks (Herrington & Oliver, 2000) with Bonk and Dennen's (2003) Instructional Design Framework for Online Instruction. The authentic task will be operationalized with the five components of Level of Web Integration, Instructor Role, Student Role, Pedagogical Strategy, and Participant Interaction.

Table 14: *Guidelines for Authentic Task to Provide Authentic Assessment of Learning within Tasks*

	Instructional Framework from Online Instruction Operationalized				
	Level of Web Integration	**Instructor Role**	**Student Role**	**Pedagogical Strategies**	**Participant Interaction**
Provide for authentic assessment of learning within the tasks	**Online Learning Environment** Student-generated resources published in online course; instructors; practitioner/experts locate anywhere Entire course located on web for students **Online Discussions** Small and Large Group Discussion Forums; Substantive and graded web activities (Bonk, Cummings et al., 2000; Bonk & Dennen, 1999; Rowley, Lujan, & Dolence, 1998)	**Pedagogical** Facilitator role; design a variety of instructional activities to assess; Post set number of cases; weave or summarize discussions; Rubric for assessment and grading **Social** Exhibit a positive and professional tone; Personalize in feedback; Create community feel **Managerial** Coordinate assignments; Assign groups **Technical** Assist with technology issues in synchronous sessions; recorded sessions (Ashton et al., 1999; Berge, 1995; Bonk, Kirkley, et al., 2001; Mason 1991)	**Participant** Completed online work; Web links to research and resources **Critical Thinking Activities** Online Discussions of how to solve problems in cases **Collaborative Thinking Activities** Peer commenting and assessment (Cummings et al., 2002)	**Critical Thinking Activities** Exam Preparation Cases **Collaborative Thinking Activities** Small Groups; Sharing strategies of problem solutions (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington, 1999; Paulsen, 1995)	**Participant** Individual exam preparation; small group work online discussion; Groups present their solutions to each other and respond online **Instructor** Develop and Discuss Exam preparation; Large group presentations of small groups **Practitioner/ Expert** Co-facilitate large group discussion where small groups present (Cummings, et al., 2002; Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington, 199; Paulsen, 1995)

Example: Medical School Online Education

A situated learning environment provides for integrated assessment of learning within the tasks (McLellan, 1993; Young, 1993, 1995; Herrington & Oliver, 2000). The implications of this for instructional design is that some thought should be given to designing authentic assessment which is concerned with the process as well as the product of involvement with an interactive multimedia program (Herrington & Oliver, 2000, p.6). Given the current demands in higher education in nursing and medicine to maintain changing healthcare scene, the challenges for faculty to mesh necessary content with the practice of today's requirements of today's students, a studied re-examination of teaching strategies might result in some new approaches to teaching bioethics. "A general review of the context in which teaching bioethics occurs will meet the diverse needs of today's student" (Pinch & Graves, 2000, p. 705).

For this example, authentic provide authentic assessment of learning within the tasks is operationalized in the online session in the course located in the UVaCollab course management system (CMS), as stated in the above examples. The course will occur in the online learning environment of UVaCollab, where there are resources, readings, assignments, discussion forums (asynchronous) and live discussion forums. This CMS has the accessibility for authentication for non-UVA logins, and it would be accessible for experts/practitioners. In addition, the synchronous social learning tool, Elluminate Live, is integrated in UVaCollab. The instructor would post a set number of cases, where topics in bioethics must be solved and addressed, for each small group discuss and answer. These problems would be related to their exam, and all groups would respond to the solutions to the other group in a large group presentation. Both the small and large groups would discuss their solutions in the synchronous online learning environment, Elluminate Live in UVaCollab site. For these sessions, the solutions to the problems presented in the cases can be shown in the Whiteboard or

via Application Sharing, so that all participants can see the information being discussed. The instructor and practitioner/expert would be co-facilitators in discussing the solutions to the cases and sharing what would be expected in an exam environment. The instructor would facilitate the small group discussions online, to observe and assess the group's progress as they go through this process. The assessment strategies that are most effective in an engaged environment- such as projects, papers, discussions, and student-led discussions, also require additional tools, such as rubrics and small group assessments, and reflective self- assessments can help to effectively measure individual performance in an engaged online learning environment (Conrad & Donaldson, 2004). Individual feedback would then be given to the group members via email. A rubric for the small group presentation would be provided to all groups and located in the UVaCollab site, so that all participants would understand what was to be expected. Small group assessments would be given to all group members, to measure and glean feedback with regards to the effectiveness of their small group. These assessments would align with the dimensions of professional competence from Epstein and Hundert's (2008) research of the Dimensions of Professional Competence. The cognitive dimension would be assessed as online forums, readings, and assignments would contain the core knowledge, basic communication skills, information management, applying knowledge to real world situations, abstract problem solving and self directed acquisition of new knowledge.

Finally, guidelines designed to inform instructional designers of the decisions needed to design Authentic Tasks in the online environment, based upon Herrington and Oliver's (2000) research in combination with Bonk and Dennen's (2003) Instructional Design Framework for Online Learning are summarized in Table 15. This framework provides a guide, which can be implemented across varying fields of discipline, as it is created for the instructional designer to implement when working with a subject matter expert, namely faculty members.

Table 15: *Summary of Guidelines for Instructional Designers for Authentic Tasks in the Online Environment*

	Level of Web Integration	**Instructor Role**	**Student Role**	**Pedagogical Strategies**	**Participant Interaction**
Authentic Task					
Provide authentic contexts that reflect the way the knowledge will be used in real life	Online discussions in specific learning management system in online environment that provides authentic context in the field	Instructor provides content and context for discussion and manages facilitation, social interaction and technical support	Activities: Participant participation in online apprenticeship experiences in online environment in specific context and content area	Critical and collaborative thinking activities include: online debates; problem based learning task; discussions with peers	Participant interacts in online discussions; Instructor, provides support for virtual team meetings with students and practitioner or expert; Practioner/Expert interacts in online discussions
Provide authentic activities	Online course management system for online course; specific tasks in the online environment; discussion board; Project Presentation	Instructor facilitates online discussions and presentations; Creates activities to create a professional community in online environment	Student participates in online discussions and collaborates with peers with regards to case analyses with respect to specific content through role-playing; online presentations	Critical thinking and collaborative thinking activities such as task from experience in the field of practice; group online discussions role-playing	Instructor interacts with participant by giving feedback from task; participants interact with each other in group discussions and presentations; Practitioner/Expert interact with participants in online discussion; presentation feedback
Provide access to expert performances and the modeling of processes	Course management system for online course delivery; tasks and online discussions; provide access to practitioner/ experts for tasks in course	Instructor facilitates, models, assigns teams; displays interpersonal outreach and technical support	Student participates in virtual professional development and expert panel discussions and online reflections with practioner/ expert	Critical thinking activities include field reflections; research in the field; online mentor; model professional discourse	Instructor interacts with participant by disseminating news in the field/discipline; Participants interact with peers by generating cases based upon reflections; Practitioner/Expert interacts with participant providing online mentoring

	Level of Web Integration	Instructor Role	Student Role	Pedagogical Strategies	Participant Interaction
Authentic Task					
Provide authentic contexts that reflect the way the knowledge will be used in real life	Online discussions in specific learning management system in online environment that provides authentic context in the field	Instructor provides content and context for discussion and manages facilitation, social interaction and technical support	Activities: Participant participation in online apprenticeship experiences in online environment in specific context and content area	Critical and collaborative thinking activities include: online debates; problem based learning task; discussions with peers	Participant interacts in online discussions; Instructor, provides support for virtual team meetings with students and practitioner or expert; Practioner/Expert interacts in online discussions
Provide authentic activities	Online course management system for online course; specific tasks in the online environment; discussion board; Project Presentation	Instructor facilitates online discussions and presentations; Creates activities to create a professional community in online environment	Student participates in online discussions and collaborates with peers with regards to case analyses with respect to specific content through role-playing; online presentations	Critical thinking and collaborative thinking activities such as task from experience in the field of practice; group online discussions role-playing	Instructor interacts with participant by giving feedback from task; participants interact with each other in group discussions and presentations; Practitioner/Expert interact with participants in online discussion; presentation feedback
Provide access to expert performance s and the modeling of processes	Course management system for online course delivery; tasks and online discussions; provide access to practitioner/ experts for tasks in course	Instructor facilitates, models, assigns teams; displays interpersonal outreach and technical support	Student participates in virtual professional development and expert panel discussions and online reflections with practioner/ expert	Critical thinking activities include field reflections; research in the field; online mentor; model professional discourse	Instructor interacts with participant by disseminating news in the field/discipline; Participants interact with peers by generating cases based upon reflections; Practitioner/Expert interacts with participant providing online mentoring

	Level of Web Integration	Instructor Role	Student Role	Pedagogical Strategies	Participant Interaction
Authentic Task					
Provide multiple roles and perspectives	Course management system for online course delivery; Online discussions where students have access to practitioners/ Experts and other students; Student generated resources	Instructor facilitates, designs and manages, online discussions with between practitioner/e xperts and participants; Organizes assignments provides technical support	Student participates in critical thinking activities such as field reflections; professional online discussion; Portfolios with peer feedback	Critical and collaborative thinking activities such as field reactions and online discussion and online debate; topical online discussions and structured controversy	Instructor interacts with participant by selecting topics for activities; Participant interacts with peers through research topic and field reflections and portfolio; Practitioner/Expert participates in online discussions, debates
Support collaborative construction of knowledge	Course management system for online course delivery; online discussions for collaboration	Instructor designs instructional activities, facilitates group discussions; identifies themes in discussion; provides expectations and technical support	Student participates in critical and collaborative activities in online discussions and field reflections	Critical and collaborative thinking activities such as experiential field reflections; reactions to research; case analyses; online generated cases based	Participants interact with other students by generating cases and experiential reflections online; Instructor interacts with participant in online discussions and feedback; Practitioner/Expert interacts with participants group online discussions generated cases
Promote reflection to enable abstractions to be formed	Course management system for online course delivery; online discussions for reflections	Instructor facilitates online discussions; elicits reflection; encourages articulation of ideas; manages the assignments and provides technical support	Student participates in field reflections through critical and creative thinking activities	Critical and creative thinking activities such as summary of field reflections; analyses of cases made through online explorations and readings	Instructor interacts with participants by posting questions for student reaction/reflection; Participant interacts through individual observation and reflections; Practitioner/Expert interacts with participant through private online diary as a mentor

	Level of Web Integration	Instructor Role	Student Role	Pedagogical Strategies	Participant Interaction
Authentic Task					
Promote articulation to enable tacit knowledge to be made explicit	Course management system for online delivery; online discussions for tacit knowledge to be made explicit	Instructor facilitates, encourages student knowledge building; provides elaboration; manages and organizes assignment; provides technical support	Student participates in critical and collaborative thinking activities through field reflections and virtual debate	Critical and collaborative thinking activities include online case analysis and structured debates	Participant interacts with other participants in the online debate Instructor interacts with participant in online debates Practitioner/ Expert interacts as co-facilitator in online debate
Provide coaching and scaffolding by the teacher at critical times	Course management system for online delivery; Online discussions for coaching and scaffolding	Instructor facilitates, moderates, designs scaffolding of instruction through assignments; Manages group work and provides technical support	Student participates in critical and collaborative thinking activities such as online discussions and peer feedback	Critical and collaborative thinking activities include online case analyses and jigsaw problem solving based upon research	Participant interacts with other participants in online small group work; Instructor interacts with participants in online discussions; Practitioner/Expert interacts with participants in online discussion
Provide for authentic assessment of learning within tasks	Course management system for online delivery; online discussions for authentic assessment	Instructor facilitates, designs tasks for assessment; creates rubric for assessment; manages and organizes groups and assists with technical support	Student participates in critical and collaborative thinking activities such as online discussions; online peer commenting based upon specific task	Critical and collaborative thinking activities include cases to generate resources for exams; sharing strategies and solutions to problems	Participants interact with other participants in small online discussions; Instructor interacts with participants in individual exam preparation online; small group discussions sharing strategies Practioner/Expert interacts by co-facilitating online discussions

Illustrative Module Prototype

The goal of any instructional system is to promote learning. Therefore, educators must tacitly or explicitly know the principles of learning and how students learn. This is especially true for online learning, where instructors and learners are separated. The development of effective online learning materials should be based upon proven and sound learning theories (Rovai, 2002). According to Siemens (2004), we now need a theory for the digital age to guide the development of learning materials for the networked world. Educators should be able to adapt existing learning theories for the digital age, while at the same time using the principles of connectivism to guide the development of effective learning materials. Thus, the literature suggests the need for a guide providing specific examples of authentic tasks in the online environment, which gives specific descriptions of instructor role, student role, pedagogical, and participant interaction for instructional design and development for online courses. Reeves (2000) states that developmental models need to do the following: Follow heuristics need to engage in the following in developmental research; Carefully align any prototype technological solutions with instructional objectives, pedagogy and assessment; Clarify the theoretical and practical design principles that underlie prototype technological solutions.

Almost all classic instructional design models are a variation of the ADDIE model, Molenda (2003), which stands for Analysis, Design, Development, Implementation, and Evaluations. These factors, or elements, are the component parts of instructional design and can be thought of as a set of questions. Once the designer has come to some agreement on the nature of the product, a common approach to developing a prototype is to complete one section or "slice" of the instructional program that has the interface, content, look, and feel of the final program or course. Prototypes are part of the design process, not a complete and accurate representation of the final product (Cennamo & Kalk, 2005). Thus, this prototype will show how one specific authentic task would be incorporated as part

of an entire semester long course, from the authentic tasks in the guidelines. Based upon Dr. Reeves' review, the prototype will provide a specific concrete example of the design and development for one of the nine authentic tasks in the guidelines. Thus, the intention of the short prototype is to provide faculty with a concrete example of how to implement the design and development of one specific authentic task from the guidelines in the online environment. The guidelines demonstrate the processes needed for faculty to implement authentic tasks based upon the components in the table. The content example would give the context for professionalism in bioethics education. The prototype would be developed based upon a Table 12: Task to Promote Articulation to Enable Tacit Knowledge, will provide the faculty member a concrete example for what would be included in the design of instruction. The specific components of Level of Web Integration, Instructor Role, Student role, Pedagogical Strategies, and Participant Interaction from Table 12 will be addressed in the module prototype. Hence, the instructional design decisions made for this prototype are with regards to the instructional design perspective, not the subject matter expert. Thus, the intention of this prototype will model specific content, however the focus is to model the decision making process of the instructional designer.

The design and development of the prototype module will give faculty a specific example of how the guidelines can be implemented for instruction. The production documents will include the following components for the prototype module:

User scenario
Templates for page layout
Requirement Specifications
List of Media Assets Needed
Instructional Events
Draft Site Document on UVaCollab.

The instructional design decision-making process is based upon the production document model from Real World Instructional Design (Cennamo & Kalk, 2005). Requirements and specifications will be

included to identify software tools and strategies that will be use in the prototype. Media assets that will be necessary for instruction will be described. A UVaCollab site will be created which will specifically demonstrate the design for this example.

User Scenario

Decision-making in bioethics occurs when an individual our group of individuals confronts a bioethical dilemma that requires a choice be made between two or more seemingly conflicting outcomes (Vath, 2004). The authentic task being operationalized in the faculty guidelines is to promote articulation to enable tacit knowledge to be made explicit. Thus, the Instructor Role component and Web Integration component will be for the instructor to facilitate and organize all components of the course, case readings, recorded sessions, assignments, and discussion board discussions, in UVaCollab for the learner to access. The learner views recorded session topic is with regards to a specific case in bioethical reasoning. The pedagogical strategies, as defined in the guidelines would be the Critical Thinking Activities, such as online case analysis on this specific case. The instructor would show a video presentation, *Let me Die*. This is based upon a specific case entitled Attorney and Patients' Rights Advocate: *Dax's Story: A Severely Burned Man's Thirty-Year Odyssey*. In this case, the patient was severely burned and following the accident he was treated for burns against his will. The participants would view the podcast and listen to the case. A transcript would be provided for the participants in the course. This case is shown and two questions would be posed, where the professionals would be asked to make a decision. "Decision-making in bioethics occurs when an individual or group of individuals confronts a bioethical dilemma that requires that a choice be made between two or more seemingly conflicting outcomes" (Vath et al., 2004, p.5).

The two questions:

1) When should you have been allowed to make your own decision to refuse life- sustaining treatment? When do you feel that you were competent to do so or had enough information about your prognosis to make your decision?

2) There should be a resistance to the kind of refusal you were making on the part of health care professionals. There needs to be vigorous dialogue to help you make your decision. How would you respond to that?

Collaborative Thinking Activities as described in the guidelines would be structure controversy and debate about this specific case utilizing the questions above.

A presentation would be presented and recorded in the online environment in a using a synchronous learning tool, such as Elluminate Live. The instructor of the course would discuss and define the models of bioethics that pertain to their field: Ends-Based; Rule-Based; Care-Based (McQuaide, et al., 1999). The participants would be asked to present and justify the decision in this case utilizing these definitions. The assessment for the decision-making processes for this case will utilize and align with the Dimensions of Professional Competence with the components of cognitive, contextual, and integrative as referenced in the guidelines.

Based upon Table 12 and example in the guidelines, for each session are the following components:

Recorded Session: Presentation of content recorded and viewed asynchronously by participants.
Discussion Board Prompt: Prompts with questions about asynchronous recorded session and reading.
Assignments: Posted after each asynchronous recorded session.
Online Small and Large Group Sessions: Small and large group synchronous case discussions provide social learning environment for collaboration and discussion. Small group presentations and debates based upon to decision-making processes for the case.
Pre and Post Assessment: There will be assessments for each session to assess effectiveness of ethical reasoning.

The instructor will provide the pedagogical role of facilitator, when in the discussion board forums, where students would be knowledge building and elaborating. The instructor will also provide both social and managerial role when coordinating assignments, small groups, and creating a

community in the online environment (Ashton et al., 1999; Berge 1995; Kirkley, et al., 2001; Mason, 1991). The participatory student role will be carried out through peer commenting in the discussion board, critical thinking activities in small and large group discussions, virtual debates, and small group presentations to the large group (Cummings et al., 2002). Participants will engage through readings and recorded sessions and in online small group virtual debates through the structured controversy stated in the case. The practitioner/experts and instructors will moderate the virtual debates as well as assess the small group presentations.

Template for page layout

This is an online module, which will meet entirely in a UVaCollab course site. The module consists of both asynchronous and synchronous components. All course materials are located in the UVaCollab course site. The UVaCollab site has the following components: Online Sessions; Assignments and Assessments; Discussion Board; Case Study, Schedule. (Screen shots for session in UVaCollab in Appendix C).

Requirement Specifications

Web integration for this course is entirely online in UVaCollab. Critical and collaborative thinking activities are online in a social learning tool, Elluminate Live. Access to the internet to access the course in UVaCollab is required. Mozilla Firefox or Internet Explorer 7.0 or above is required for compatibility with Java for Elluminate Live. A Logitech headset is required for listening to and participating in small group online synchronous discussions in Elluminate Live.

List of Media Assets Needed

Based upon the Level of Web Integration in Table 12 in the faculty guidelines, the entire course is on the web, where small group discussions and small group work will occur (Bonk, Cummings, et al., 2000; Bonk & Dennen, 1999; Rowley, Lujan, & Dolence, 1998). This is an online

module, which will meet entirely in UVaCollab course site. The module consists of both asynchronous and synchronous components. (All screenshots of course components are located in Appendix C. Directions for media assets are listed in Appendix D).

Instructional Events

Based upon Table 12 in the faculty guidelines, the following components of web integration and instructional strategies are described in this section in order to promote articulation to enable tacit knowledge to be made explicit.

Recorded Online Sessions

Available asynchronously for participants to view video presentation on Ends-Based; Rule-Based; Cared-Based decision-making criteria, based upon Ethical reasoning strategies fall under three categories: Ends-based; Rule-based; Care-based (McQuaide et al., 1999). Participants will present and organize content information using End's based presentation and synthesis and assess integration of new knowledge.

Discussion Board Forums

The guidelines state that the online learning environment will provide online discussions through substantive and graded web activities (Bonk, Cummings et al., 2000; Bonk & Dennen, 1999; Rowley, Lujan, & Dolence, 1998). The asynchronous discussion board will provide student-student interaction and student-instructor with the session content in the recorded session. Take action and monitor progress through feedback on performance through small group discussion. Gain and integrate content knowledge from content in presentation. As stated in the Medical Example Online, the discussion board forum would be to discuss readings and field experiences.

Assignments

The guidelines state that critical thinking activities through online case analyses and collaborative thinking activities through structured debates would serves as assignments (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington; Paulsen, 1995). All assignments would be posted with specific criteria and assessment rubrics for small group presentations.

Online Sessions

Based upon the guidelines in Table 12, small and large group sessions in a synchronous environment would occur through structured controversy on the web, and the instructor serve as moderator and organizer of the online discussions in collaboration with the practitioner/expert (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington, 1999; Paulsen, 1995). In the synchronous online environment, the instructor would break the large group into small groups where they would need to address the three issues stated in the transcripts. Small groups would address the case using the criteria from the presentation. Large group discussions would be in a synchronous environment where participants would show their demonstrations. The participants would gain and integrate content knowledge through case discussions and presentation.

Assessment

A pre and post test assessment would ask for justifications in the presentations to see what types of ethical reasoning strategies were used by the participants in both ether pretest scenario and the final presentation scenario based upon the definitions in McQuaide's (1999) Ends-Based model. These tests will be presented by the instructor at the beginning of the instructional sequence on the first day, when students are introduced to a brief ethical dilemma that requires participants to make a decision, and justify their decision.

Assessment of professional competence (Epstein & Hundert, 2008), would be implemented in the cognitive domain, as core knowledge, information management, applying knowledge to real world situations, using tacit knowledge and personal experience, and abstract problem solving would be demonstrated in the online small group discussions and discussion board conversations. These discussions will be assessed by the Expert/practitioner and will utilize rubrics for assessment based upon Dimensions of Professional Competence of Cognitive, Contextual, Integrative components. As stated in the guidelines, these competencies align with the courses in professionalism that medical students will face in the field of medicine. These dimensions are components of the pedagogical strategies of critical thinking and collaborative thinking activities in this session (Bonk, 1998; Bonk & Reynolds, 1997; Oliver, Omari, & Herrington, 1999; Paulsen, 1995).

Draft Document on UVaCollab

There will be an illustrative module prototype in UVaCollab, demonstrating the different components from Table 12 and the instructional design decisions demonstrated in the online environment. Serves as a template for faculty as well as a guide. The online learning environment, as outlined in Table 12 will have the following components in UVaCollab. The course site has the following: Recorded Online Sessions; Discussion Forums; Assignment and Assessments; Schedule; Dax Case. (See Appendix C). The recorded sessions are where the asynchronous content presentations are accessed. The discussion forums are for case discussions and article discussions are accessed. The Assignments and Assessments sections contain were all assignments for the course and assessments are accessed. The schedule serves as a dashboard so that participants can identify what task is due, where it is due, and the date it is due. The Dax Case is also listed as a separate web link for accessing.

Chapter 5: Expert Reviewers

This chapter contains a discussion of the summary of data collected, outcomes, findings and results from the feedback obtained from external reviewers. A discussion of the recommendations that they made, and a description of the consideration made towards implementing them in this study.

Expert Review

The expert reviewer process focused on the validation of the authenticity of the tasks designed and developed in Tables 6-15. Dr. Tom Reeves, Professor of Educational Psychology at the University of Georgia, and Dr. Jan Herrington, Professor of Education at Murdoch University, Australia. They are both highly regarded as experts in the field of authentic instruction. They agreed to review the design of my guidelines for adherence to authentic instruction. This review, conducted in two phases. The first phase was the interview process. The researcher communicated via email with both reviewers. Dr. Reeves was available for a phone conversation and the researcher was able to explain the intention of the research. The second phase was the Review and Validation of the Guidelines. The researcher sent Chapter 4 to the reviewers and each provided a written response via email. The research question asked: "Do the guidelines developed operationalize authentic tasks in the online environment?"

The Interview Process of the review process focused on an explanation of the creation of the guidelines. The researcher had email conversations with both expert reviewers and a phone conversation with Dr. Reeves. Both reviewers agreed to do the study and agreed they understood the task they were asked to perform.

In the Review and Validation of Guidelines both external reviewers agreed that the guidelines were comprehensive and validated that they adhered to the criteria for authentic instruction.

The expert review phase of this research produced valuable information that was applied to the faculty guidelines, the design of the prototype module, and to me as an instructional designer. The feedback from the expert reviewers was collected and analyzed. Field notes were taken and themes emerged from the researcher reflections. Each reviewer provided specific notes and recommendations, which were analyzed and included in the guidelines, medical online examples, and illustrative module prototype. A record of the themes that emerged based upon comments made by each expert reviewer is included in Appendix F. While not all comments are included, specific themes that arose are stated with respect to the guidelines, medical online example and illustrative module prototype and all recommendations from Dr. Reeves and Dr. Herrington were all fully implemented.

Outcomes and Findings

Benefits of the expert review

The expert review phase of the design and development phase of this study was particularly meaningful and important information with regards to the developmental nature of this research study was provided. Reeves (1995) stated that the developmental research model has a goal of inquiry where "research is focused on the invention and improvement of creative approaches to enhancing human communication, learning, and performance though the use of technology and theory" (p.4).

Dr. Reeves' (personal communication, October 12, 2009) review and recommendations influenced the development and design of the Medical Examples Online, the Illustrative Module Prototype, and clarification each of the components Instructional Design Framework for Online Education in the tables.

Dr. Herrington's (personal communication, October 14, 2009) review and recommendations helped to clarify the intention of the faculty guidelines. Through her feedback, I reviewed and

reflected upon the process that faculty would use when implementing the nine tables in the guidelines for course development. This process was crucial, as each of the authentic tasks operationalized in the guidelines was intended to for faculty implementation for an entire course. For example, in a ten-week course, one authentic task would be operationalized, through a specific assignment or activity, on a weekly basis in the design and development of a course, as opposed to one course designed specifically around one authentic task. This was an important design and development consideration that needed to be addressed.

Recommendations of the expert review

Dr. Reeves' (personal communication, October 12, 2009) review provided a detailed review with suggestions for clarification of Instructor Role, Student Role, and Assessments in the Medical Online Example for each authentic task in the table. His recommendation was to make each example more specific and concrete examples for a faculty to read in addition to the guidelines so that they are clear and explicit. I implemented these changes so that faculty would more explicitly understand the intent and purpose of each of these roles. His recommendations for concrete examples were implemented in the Illustrative Module Prototype. Dr. Reeves made specific recommendations with respect to a bioethics case, which was utilized in the Illustrative Module Prototype.

Dr. Reeves (personal communication, October 12, 2009) made specific recommendations that the assessment for each authentic task in the field of medicine would need to be correlated to have specific competencies for each task. Specifically, he stated that there needed to be a connection to professional development in a residency program with specific competencies in order to be meaningful for participants. Reeves, (personal communication, October 12, 2009) asked the question, "How will this align with assessments students face in their program?" which was addressed as I researched and included Hundert's (2008) definition of professional competence in the

assessment component for each Medical Online Example. Thus, specific professional competencies were aligned in each assessment. Dr. Reeves (personal communication, October 12, 2009) also included a question regarding privacy issues of recorded session in bioethical small group discussions. This was reviewed and removed in each Medical Online Example and omitted in the Illustrative Module Prototype.

Dr. Herrington (personal communication, October 14, 2009) provided a different and equally clarifying perspective with specific recommendations. Her review helped to clarify that I needed to explicitly state the fact that these nine tables were to be implemented as part of the design and development of an entire course. Therefore, each task was intended to be implemented part of entire course, not as a nine separate tasks for nine separate courses. This process would help the instructional designer explain the process of how to utilize the tables when designing and developing the course. This was helpful, as faculty would need to make this connection to in order to implement this in their online course design and development.

Dr. Herrington (personal communication, October 14, 2009) also recommended that Table 8 needed to include the creation of a major product, which I revised to include the project presentation. In addition, she stated that I needed to revise the Assessment in Table 12, which I revised to align with Epstein and Hundert's (2008) competencies.

Thus, using the recommendations from both Dr. Reeves and Dr. Herrington, clarified the intention of the guidelines. They were intended to give general processes to inform decisions for instructional designers when designing and developing an online course with authentic tasks. The Medical Online Example was specific to professionalism in bioethics and the Illustrative Module Prototype was intended to provide a concrete example for how to design instruction utilizing one specific example from the guidelines.

Observations

Stakeholders desire to demonstrate that participants in distance-delivered courses receive the same quality of instruction off campus as those involved in the traditional classroom setting. Developmental research offers an opportunity to study the process of distance education while engaged in distance course or program implementation (Lockee, et. al, 1999). Thus, the study of the instructional design, development and evaluation process was implemented when developing and designing these guidelines. The implications for instructional designers in the field of instructional design and technology that have emerged through this study are to create guidelines that are explicit and easily generalized and which are based upon specific research and existing models. The review of the experts was crucial in the design process, as it helped to clarify each component and give more specific, concrete examples so that faculty could transfer their course content into the online environment. In addition, creating the illustrative module prototype using an existing design model for professional instructional designers (Cennamo & Kalk, 2005), based upon the ADDIE model, provided a systematic process for myself as the designer. The purpose of the guidelines was for the instructional designer to have a framework, based in research so that faculty can operationalize authentic tasks in the online environment.

One goal of developmental research is to link theory, research and practice (Richey et al., 1996). Through this research study the most important of the findings was a direct result of the collaboration through expert review process. Each reviewer provided specific feedback with regards to authentic tasks and an authentic approach for the illustrative module prototype. These observations were based in research and helped to clarify the specific elements in the guidelines and how they would be implemented in the design and development for a course when working with a faculty member. Reeves et al., (2005) state that development research is "an intensive collaboration among

researchers and practitioners" (p. 103). The collaboration through expert reviewers also informed the design process of the illustrative module prototype. Without this process, the illustrative module prototype would not have strongly represented the targeted elements of authentic tasks with specific competencies criteria, thus offering insufficient or inaccurate findings. The advice from Dr. Reeves and Dr. Herrington provided research-based instructional design and development into practice. Each are highly regarded researchers in the fields of instructional design and authentic learning. Each recommendation was fundamental in the overall design and development illustrative module prototype and their counsel led to a useful product.

Ertmer and Newby (1993) outline three important reasons for focusing on learning theories as being as stated earlier: "instructional strategies; foundation for strategy and integration of this strategy in instruction" (p. 51). Thus, this study implemented authentic learning in the online environment, however, not all components of authentic learning are feasible for all courses. For example, one of the examples from the guidelines stated that sessions would be recorded for reflection and debriefing opportunities with expert/practitioners. The intent was to provide context for the learner when working with the expert/practitioner. Reeves, et al., (2005) agree stating that "rigorous and reflective inquiry to test and refine innovative learning environments as well as to reveal new design principles. Theory informing practice is at the heart of this approach" (p.107). Through the expert reviewer process, Dr. Reeves (personal communication, October 12, 2009) suggested that this might violate certain privacy issues. Indeed, the evolution of the illustrative module prototype did allow for this aspect and this feature was not included in the module. The design of the illustrative module prototype remained flexible so that the designer would work with the faculty to adapt the learning situation, environment, and audience. In addition, it is not necessary to remain committed to one idea

or learning theory, however it is important to have alignment with the specific learning theory itself when implementing the instructional design process.

Jonassen (1997) recommends providing the learner with restrictions or limitations to be considered in the problem solution. He recommends defining items such as time frames, budgets, client restrictions, and other guidelines to which the solution must conform. The problem statement should clearly identify these restrictions, which the learners will use to outline their own goals and begin the problem-solving process. Thus, the template or prototype in the specific online learning environment, such as UVaCollab would provide the constraints of this design problem. Design research requires a "defined pedagogical outcome and a creation of learning environments that address it" (Reeves et al., 2005, p. 109). Therefore, the faculty guidelines would also provide specific constraints when designing a course or module. While the module prototype or template would remain flexible, this recommendation would allow multiple perspectives of design models to permeate which would keep an element of flexibility in the overall design process. Thus, the guidelines would not remain specific to authentic learning, however, it is important to remain in alignment with the learning theory that is targeted as the approach. The module or template would provide an example of something that could be adapted based upon learning theory or learning management systems, such as Blackboard or WebCT, thus not being specific to authentic learning or UVaCollab. The module prototype could also be utilized with different content, thus not being specific to the field of Professionalism in Bioethics.

John Seely Brown presents an interesting notion that the internet leverages the small efforts of many with the large efforts of the few. The central premise is that connections created with unusual nodes supports and intensifies existing large effort activities (Siemens, 2004). Faculty at the University of Virginia (UVa), in the School of Continuing and Professional Studies (SCPS), have

been charged with transferring their current courses into an online environment. Reticently, they are working to comprehend the implications and processes necessary to address this issue. Faculty members state that their specific curriculum is too complex to design in an online environment. Faculty members need support and guidance in order to meet this charge. Thus, guidelines for faculty, where the demonstration of specific tasks for a course were specifically described have been developed. Using Herrington and Oliver's (1999) elements of authentic tasks and Bonk and Dennen's (2003), Instructional Design Framework, each authentic task was operationalized. In these nine tables, which are to be implemented for an entire course, provide descriptions for each authentic task, so that faculty can explicitly see the different roles, pedagogy, and interaction in the online environment. In addition, an example for each of the nine tasks is provided. Finally, the illustrative module prototype provides faculty with a specific example of how one authentic task would be developed and designed for the online environment.

Chapter 6: Observations and Summary

Purpose of Study

The purpose of this study was to produce faculty guidelines that operationalized authentic tasks in the online environment. A thorough review of the literature related to the research problem has been conducted, and the criteria for the study, based upon the nine specific characteristics of authentic learning, which have been identified by Herrington and Oliver (2000) in the previous chapter, were used as the protocol for the tasks to be operationalized. These characteristics were operationalized in the guidelines for online instruction, in combination with Bonk and Dennen's (2003) research on Instructional Framework for Research, Design, Benchmarks, Training, and Pedagogy in Web-Based Distance Education. Each authentic task was operationalized and presented in table format using the Instructional Design Framework for Online Education components.

Herrington and Oliver's (2000) nine authentic tasks were operationalized in these tables and an example specific to professionalism in medical bioethics was described. These guidelines were reviewed by expert reviewers, Dr. Reeves, Professor of Educational Psychology and Instructional Technology at the University of Georgia and Dr. Herrington, Professor in Education at Murdoch University in Australia, in order to validate my efforts to ensure that that these authentic tasks were operationalized for the online environment in alignment with the literature.

This chapter contains a summary of the developmental research study and a description of how this research can inform instructional designers who are designing authentic learning in the online environment in the field of instructional design.

Summary of Study

In this developmental research study, guidelines for an authentic online course were designed to give demonstrate the specific components and examples for faculty at the University of Virginia

(UVa) at the School of Continuing and Professional Studies (SCPS). Through a review of the literature and analysis of the feedback from the expert reviewers it was determined that these guidelines were authentic. The components of conferring with experts in the field of instructional design, using research in learning theory, and providing a module or prototype when implementing the instructional design process is crucial when working to develop, design, and implement a course or program in the online environment. Based upon the analysis of these guidelines, these instructional development efforts might be generalized across many disciplines for designing and developing online courses and programs. Reeves et al., (2005), agree in their discussion of developmental research is "the integration of known and hypothetical design principles with technological affordances to render plausible solutions to complex problems" (p. 103). Thus, the results of this developmental research study could lead other instructional designers to seek existing models to guide their design.

Various instructional theories include recommendations for designing practice activities for different types of learning tasks. Each theory offers some unique and valuable suggestions related to the design of practice activities. However, no single theory or model is available "which provides the answers to many of the basic question to many of the basic instructional designers frequently encounter in designing the practice component of instruction" (Salisbury, et al., 2005, p.9). Recommendations for instructional designers designing guidelines for authentic tasks are simply that, recommendations. All recommendations may not be able to be utilized in every instructional situation across all disciplines. Guidelines for authentic online instruction depend upon the content, online learning environment, and length of the course that is being designed or developed for the online environment. Recommendations for decisions instructional designers face when designing guidelines for authentic activities online one recommendation would be to ensure that the instruction

is indeed authentic. Herrington and Oliver's (2000) defined authentic learning tasks and these guidelines operationalized them for the online environment. In each phase of the design and development the recommendation for the instructional designer would be to ensure to attempt to maintain authenticity of the task, as defined by Herrington and Oliver (2000) with the subject matter expert. Each task must be developed in alignment with the specific content and the field of study for the participants in both the guidelines and the illustrative prototype module. This recommendation would ensure authenticity of each task designed and developed for a course.

In addition, using Bonk and Dennen's (2003) Instructional Design Framework for Online Education research also provides the designer with a framework to follow, which would inform instructional design decisions about the online learning environment, instructor and student roles, and pedagogical strategies and participant interaction. Please refer to Table 15, where this guide is summarized, and beginning on page 106, in Chapter 4.

Thus, combining these two research frameworks these guidelines inform the instructional designer about decisions that need to be made about both authenticity of task and how to design this task in the online environment for authentic online instruction of a course or module.

Instructional designers are not alone in the design and development of courses. Reeves et al., (2005) state that developmental research can contribute to our field as it can inform the field of instructional design "as it may well advance the quality and usefulness of a field that is presently at risk of becoming inconsequential and irrelevant" (p. 110) through the futile media comparison studies and concentration of usage of tools instead of the intended outcome of the instruction, based upon the pedagogy. They must work in collaboration with instructors, subject matter experts, and researchers when designing courses and programs. Instructional designers working to pursue developmental goals must seek collaboration with other researchers and practitioners. This will create a course or

program that is intentional in its design and development, where learning theory, research and practice will be integrated into an instructional course, module, or program in an online environment.

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Appendix A

A Checklist for Addressing Common Concerns of Product Research Design

(Richey & Klein, 2007, p. 64)

1. Determine if the study will be conducted while design and development activities are occurring or if retrospective data will be used.
2. Use formative, summative, and/or confirmative evaluation to address questions of product and tool impact such as the following: Is the product usable? Is it cost effective? Does it impact attitudes, learning, performance, and organizational results?
3. Identify techniques that provide for objective data collection,
4. Establish validity of data and the subsequent findings so that the following questions can be addressed: Are the data supported by multiple sources? Have all biases been avoided? Have in-progress data been collected? Have design and development procedures and instruments been piloted?
5. Facilitate generalizability so that the following questions can be addressed: Are the findings sustained over time? Are the findings sustained across settings? Are the findings sustained with varying designers/developer? Can the findings be interpreted broadly?
6. Anticipate and control potential problems by addressing the following questions: Have any technical barriers of product evaluation or use been removed? Have unique designer/learner characteristics been accommodated? Have constraints imposed by natural work environment been accommodated?

Appendix B

Letter of Proposal to the Deans and Directors at School of Continuing and Professional Studies at UVA

Gail Hunger

Summer 2009

104 Midmont Lane

To the members of the Deans and Directors Group at SCPS:

In compliance with the policy number, I am writing to request permission to conduct research within your school district. I am currently pursuing my doctoral degree in Instructional Design and Technology from Virginia Tech located in Blacksburg, Virginia and I hope to use this research toward my final dissertation. To this point, I have been in regular contact with John Payne, the Director of Educational Media Technology, and am currently employed work for your

The purpose of this research is to create guidelines for the faculty at SCPS, as UVA moves towards a direction to create common guidelines for online learning.

Through this research, I plan to contribute to the future of your technology program for students within your school district. With my findings, I will make recommendations to the technology department regarding instructional design of the course and appropriate assessments therein. My involvement within your schools will include collaboration with some teachers and the director of technology through which I will contribute research-based design elements to be used within course instruction. I will also participate in classroom observations and pose occasional questions to students, within minimal to no interruption to class activities.

The scope of this project will be limited to only a few months time. I will begin design work in Fall 2009 and implementation and evaluation in October of 2009. It is estimated I will complete design work, implementation and data collection by early March of 2010. Following this work, I will provide the results and outcomes of this research project, which can be used by your school.

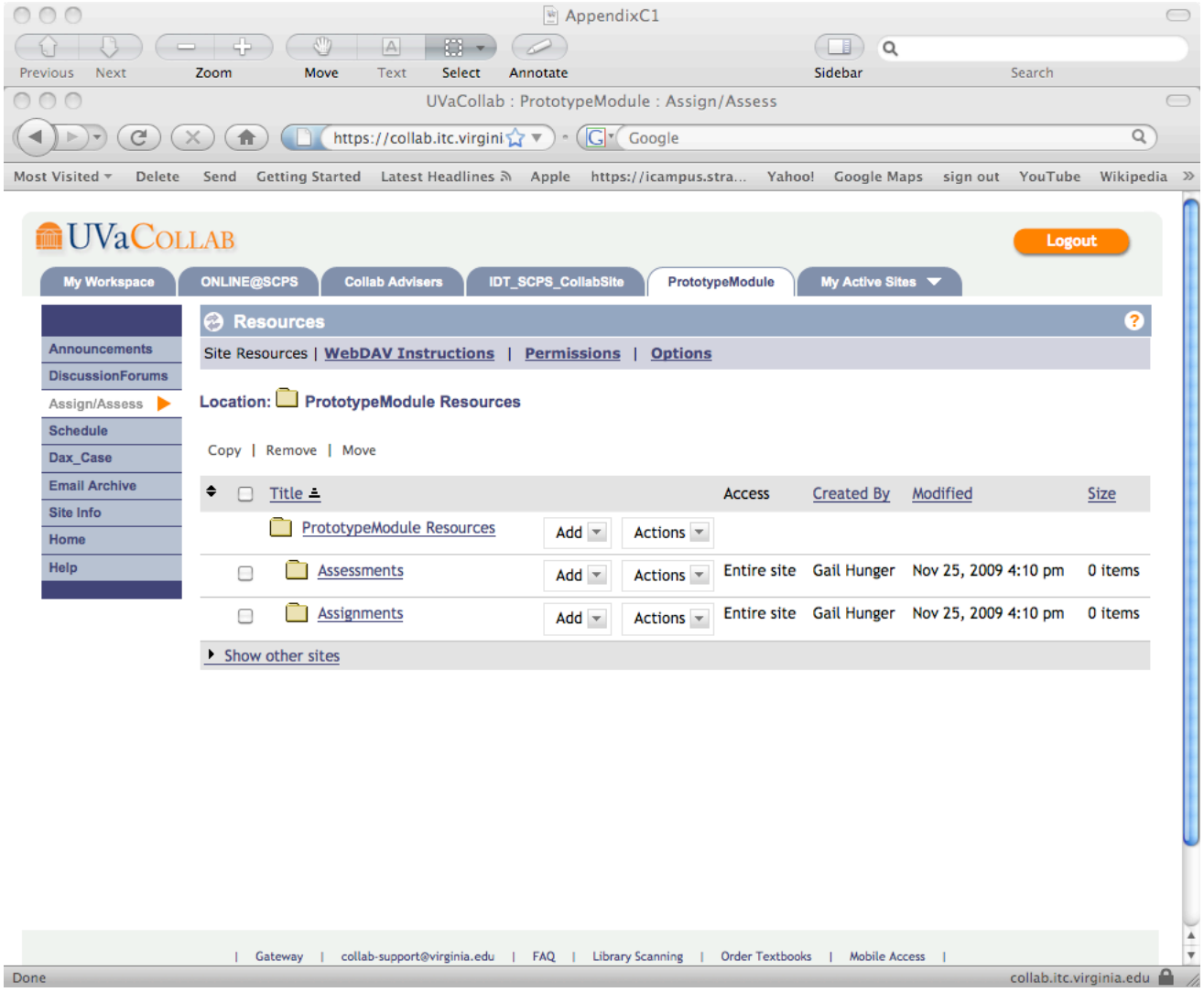
I truly appreciate your timely attention to this request. Please feel free to reference the attached document for additional information about the research project. I am willingly available to answer any outstanding questions you may have. I hope you will allow me to work with your school district and help make valuable contributions not only to your school programs, but general education within the state as well. Thank you, in advance, for your time and consideration.

Sincerely,

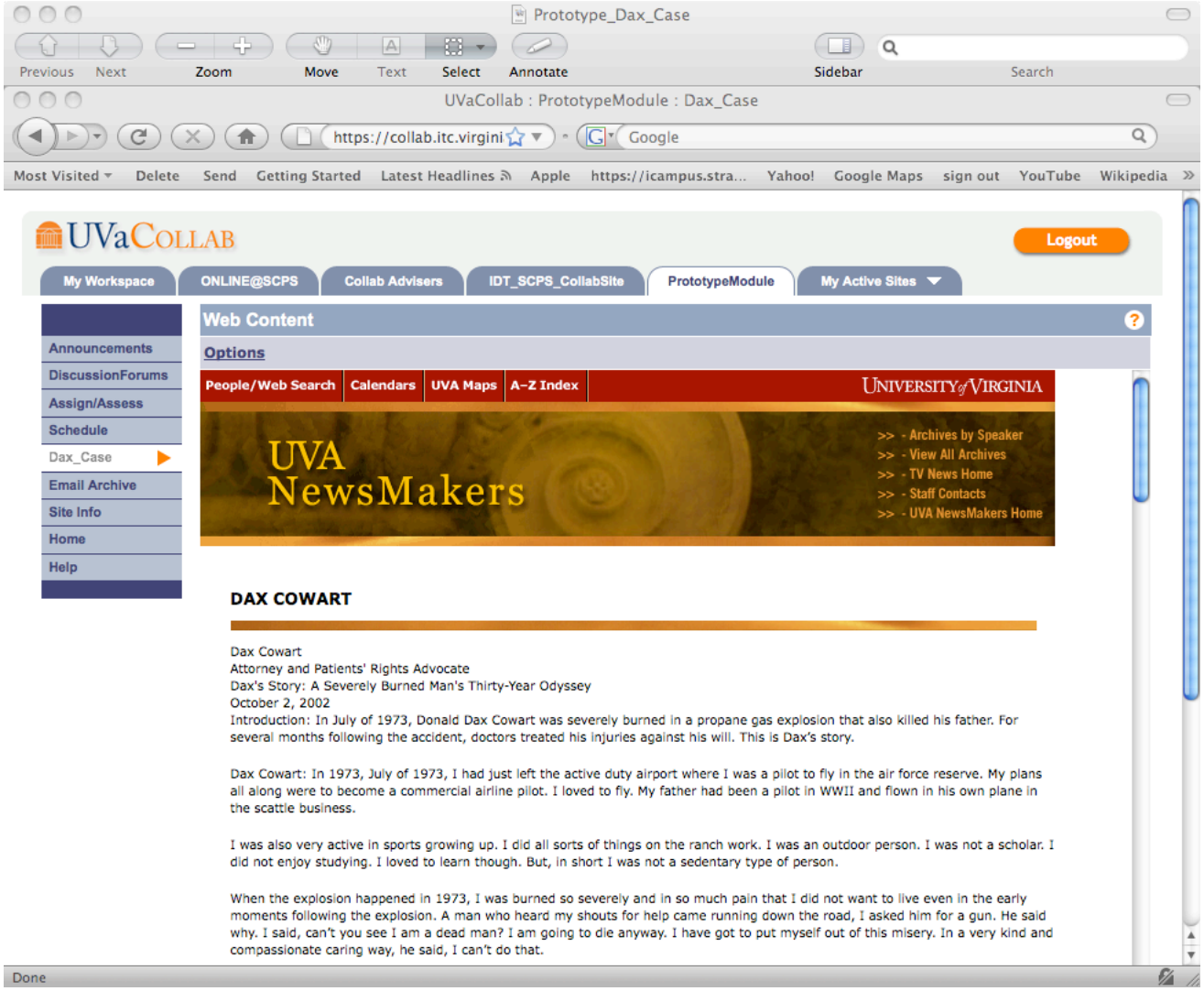
Gail Hunger

Appendix C

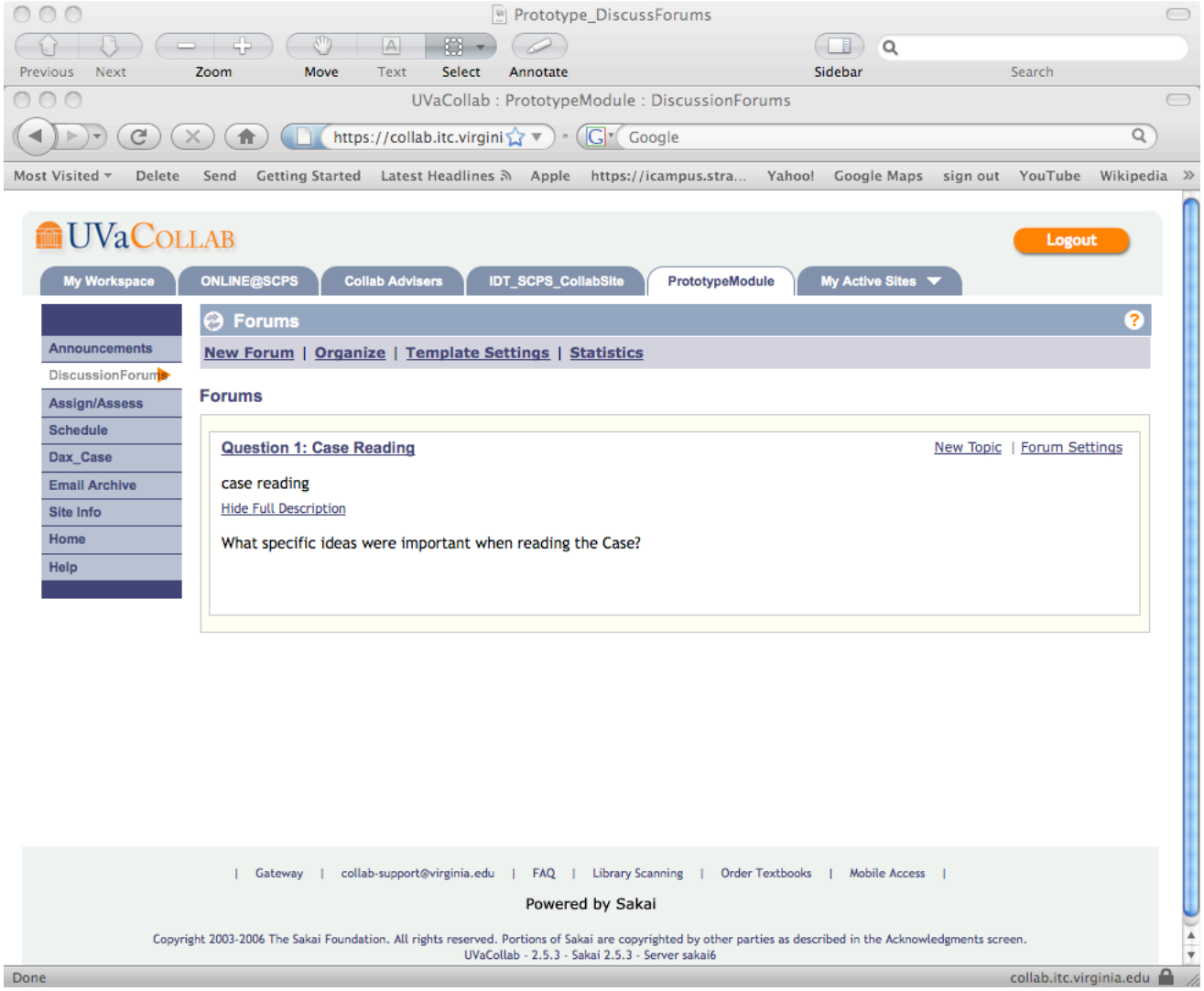
Screenshots of Module Prototype



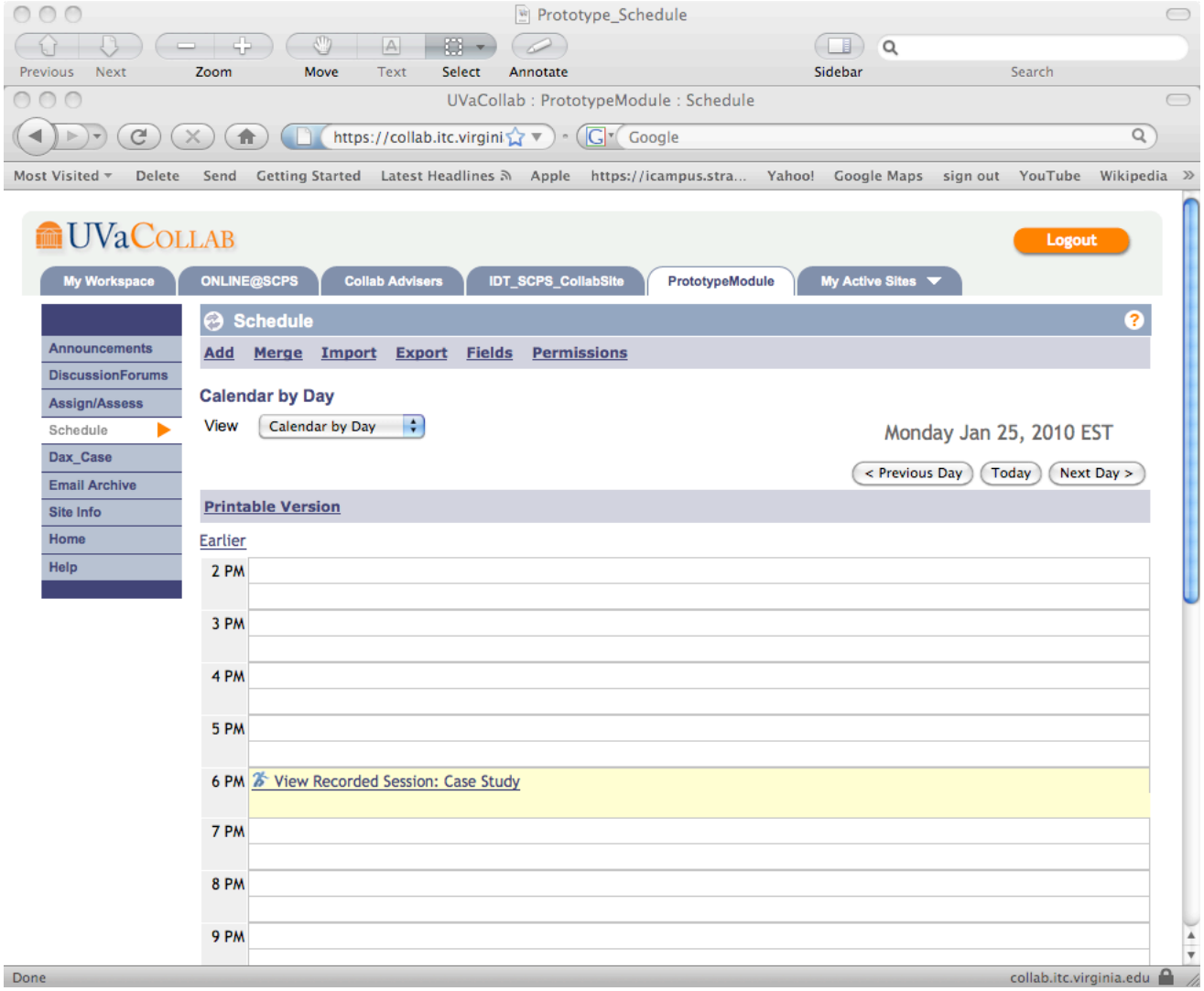
Screenshot: Case Study



Screenshot: Discussion Forum



Screenshot: Schedule



Appendix D

Directions to Course and Online Sessions

To login to your Prototype Module UVaCollab site use the following URL: https://collab.itc.virginia.edu/portal.

Sign in using your email and password that was sent to you via email notification. To access your recorded online sessions, click on Online Sessions and you will find the session entitled: Session 1: Dax Case, select "Log In". Java will download and you will be in the session.

Set Up for Live Sessions:
Please test getting into Elluminate a day or two prior to the session. On the day of the session, allow yourself 10 minutes or so to login and feel comfortable before it actually starts.

All you need to participate is a computer with Internet access and speakers. You can participate in the session by using chat functionality. While it's not necessary, we also welcome you to participate using a headset.

Appendix E

Letter Submitted to Expert Reviewers for Review of Guidelines

Gail M. Hunger, Ed.D. Candidate
220 War Memorial Hall, 0313
Blackbsburg, VA 24061
4349870468
hunger@vt.edu

September 15, 2009

Dear Reviewer,

Thank you for participating in my research as an *expert reviewer*. In this packet you will find the guidelines designed for faculty for creating authentic tasks in the online learning environment. It is intended for faculty at the School of Continuing and Professional Studies (SCPS) at the University of Virginia.

You have been identified as an *expert reviewer*, as you have experience and expertise in the areas of authentic tasks in an online environment. Using this expertise, please review these guidelines and offer feedback and recommendations. Your feedback will be used prior to implementation with faculty at SCPS.

In this packet, you should find the guidelines for nine authentic tasks operationalized in an online environment in terms of the following categories: Level of Web Integration, Instructor Role, Student Role, Pedagogical Strategies, Participant Interaction. Each authentic task has an example, which gives a specific description for the task in a Medical School Online Apprenticeship program.

Please do not hesitate to contact me if you have any questions as you review this document. My email and phone number are listed above, and I am readily available.

I greatly appreciate your time and consideration. Your much valued feedback and recommendations will impact my research immeasurably.

Sincerely,

Gail M. Hunger

Appendix F

Themes from Expert Reviewers

October 14, 2009
Expert Reviewer: Dr. Herrington

Changes I made after reviewers:
Introduction: Connection and statement about literature review and connection of 9 authentic tasks with Bonk and Dennen's research.
Changed the intro to reflect

Clarification: 9 tables are not separate entities. All tasks would be considered in an entire course on bioethics and professionalism All must be considered in final product.

It helped me clarify: this is a process-oriented tables, for faculty to use to operationalize.

Give more specific. However, each table (authentic task) not intended to be looked at separately, it's intended for faculty to use when planning an entire course, using all of the aspects of authentic tasks.

The guidelines are intended to give general processes for faculty, the example is specific to professionalism in bioethics, the short prototype is intended to provide a concrete example for how to design instruction utilizing one specific example from the guidelines.

Based upon feedback from Herrington, this disclaimer in introduction was stated.

Looked at the references- the 2000 citation is the one I wanted to use.

Table 2: Provide authentic activities. include creation of major product in all columns in table 2 with a reference to it's assessment in table 9. Make align. Already did assessment for table 9. Make it align

Reference to Epstein and Hundert's Assessment and criteria.

Project Presentation of groups using these criteria

Expert Reviewer: Dr. Reeves

October 14, 2009

Suggestions for Clarification: roles, strategies, and assessments

Be more specific, so that faculty can understand the intent/purpose.

Make it clear for faculty to read this to see what these guidelines would do for them.

Components of Instructional Design Framework for Online Education

Dr. Reeves made comments about clarification and being explicit so that faculty could read this and make it understandable and specific.

In addition, he helped me to clarify and state how I am using the frameworks to develop a more specific framework. Complex issues for faculty needing guidelines for using tools in a specific way- getting overwhelmed with the tool.

This really helped me state this- overlapping all of the frameworks into one basic framework.- and stated why I was doing it- helped me clarify and it connects to my work here at UVA. Very meaningful.

Guidelines Table 1: Example

Example: some notation; clarification of techniques

Give a specific example of bioethical dilemma (concrete)

Clarification of wording and sentences.

Clarification of interaction and debate.

Took out having sessions recorded: privacy issues.

Guidelines Table 2: Example

Example:

Clarification of some statements.

Asssessments: state what they are and how participants are held accountable for grading purposes.

Added into intro: connection to professional development in residency program. For course credit.

Answer to question: how will this align with assessments students will face?

Guidelines Table 3: Example

Example 2 and 3 Connection: Assessment and Professional Development in Bioethics.

Stating specifically how these can match what they will face in the field.

Minor clarification revisions on Examples 4-9.

Overall, identified professionalism competencies in the medical field that would align with assessments for the authentic task. Connected, meaningful for field.

Reeves big point there!

Based upon feedback from Reeves, it helped clarify the short prototype:

Connected to a specific example and given a concrete design steps for a concrete example.

Illustrative Module Prototype:

Concrete example shows how one of the authentic activities would be designed for instruction, it is not a prototype for all of the 9 authentic tasks; chose 1 to show a faculty member how this would look with concrete examples, for one authentic task within a course.

Many design models, ADDIE; DBR etc. Explicitly state, I chose a standard, accepted design model to be used with my guidelines.

Appendix G
Permissions

Bonk and Dennen (2003) Framework of the Effects of Instructional Frameworks for Web on Practical Online Learning Initiatives

RE: Permission to use Table in Dissertation
Bonk, Curtis Jay [cjbonk@indiana.edu]
Sent: Thursday, December 17, 2009 8:28 PM
To:
Hunger, Gail (gmh6w)
Cc:
vdennen@earthlink.net
Attachments:
Sure thing Gail.
Best of luck.
Curt

From: Hunger, Gail (gmh6w) [gmh6w@eservices.virginia.edu]
Sent: Thursday, December 17, 2009 4:43 PM
To: Bonk, Curtis Jay
Subject: Permission to use Table in Dissertation

Dr. Bonk,

I am currently completing my dissertation at Virginia Tech, and would like to request permission to use the following table: Bonk and Dennen (2003) Framework of the Effects of Instructional Frameworks for Web on Practical Online Learning Initiatives.

I greatly respect your work, your blog, and your initiatives towards Open/Global Learning.

Respectfully,

Gail Hunger

Re: Permission to use table in dissertation
Vanessa Dennen [vdennen@fsu.edu]
Sent: Thursday, December 17, 2009 8:35 PM
To:
Hunger, Gail (gmh6w)
Attachments:
HI Gail,
It's fine with me. Good luck with your dissertation!

Vanessa

On Dec 17, 2009, at 4:47 PM, Hunger, Gail (gmh6w) wrote:

> Dr. Dennen,
>
> I am a doctoral student at Virginia Tech and would like to request to use your table in my dissertation.
> The table is from your 2003 research: Bonk and Dennen (2003) Framework of the Effects of Instructional Frameworks for Web on Practical Online Learning Initiatives.
> Your research has been very meaningful to my work.
> Respectfully,
> Gail Hunger

Characteristics of authentic activity, with supporting authors

No. Characteristic of authentic activity Supporting authors, researchers and theorists
(Reeves et al., 2002, p. 565)

Attributes of authentic learning elements (Herrington, Oliver & Reeves, 2006)
Hunger, Gail (gmh6w) wrote:
Dr. Reeves,
I am working to try to come to your retirement conference. Your review was so helpful and I'm still working on completing the process.
Best regards,
Gail
VT Doctoral Candidate

6 December 2010
"Thomas C. Reeves" <treeves@uga.edu> wrote:

Hi Gail,

I am very happy for you to use the tables you requested.

I am attaching a holiday greeting and a flier for our new book.

It would be great if you could attend the conference in March.

All the best,
Tom