

Andrews University

School of Education

REFLECTING ON LEARNING AND HUMAN DEVELOPMENT

In Partial Fulfillment

Of the Requirements for the Leadership Program

by

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Introduction

In this reflection paper, I synthesize the learning and work completed while working on the learning competency. I begin with personal learning and several ways to consider my own learning. I move then to the new instructional strategies I decided to learn about during this course of study. Learning theories and their connection to my online courses and the connectedness of the Internet are also included. I end with a description of improved practice and my hopes for future learning.

Personal Learning

A part of the learning competency is understanding my own learning styles and preferences. In this section, I review my Kolb learning style, learning within my Strengths, learning via constructivism, and the connected and constructed knowledge of women.

Kolb's Learning Styles

In reviewing my work for the learning competency, I re-examined the Kolb's Learning Styles Inventory (Kolb, 2005) from orientation. Kolb's learning styles include the four parts of the learning cycle: concrete experience, reflecting observation, abstract conceptualization, and active experimentation. When I started the Leadership program, my learning style was firmly in the Accommodating grid. Accommodating means "adapting concepts to fit the external world" (p. 7). I learn best by "finding practical uses for ideas and theories" (p. 8). This converging style is best for technical tasks, technology careers, and finding practical applications of new ideas.

The exposure to theories of all kinds throughout the Leadership program has broadened my ability to reflect on my observations in the world. I have learned to consider a theory and see where the models and concepts connect to my observations of the world around me (Assimilating, p. 7). While I still prefer to experience and experiment, my thinking and reflecting has been developing. I have turned down a new path with the understanding of how theories can assist my thinking and reflecting about current practice. The Leadership program is moving me towards more reflection.

Strengths Based Leadership

In the orientation session, we also took the Strengths 2.0 Inventory (Rath, 2007). I discovered that two of my Strengths are Learner and Input, which fit well with the learning competency. Learners love to learn and thrive under constant change. Those with the Input Strength are inquisitive and collect things, such as information. In Section A of my artifacts is a full reflection on using Strengths in my leadership. In summary, I lead by learning publicly and admitting that I am still learning. I respect superior knowledge, and learn alongside others. I invest in the learning of others by sharing knowledge, answering questions, and suggesting sources of learning. I create enthusiasm for learning among my colleagues. I use my Input Strength to lead by checking sources of information, sharing information, and building relationships based on shared interests (Rath & Conchie, 2008).

Constructivism

In considering my personal learning, I realize that the theory of constructivism is most comfortable for my learning. I prefer “project based learning” (*progressivism*) with the real-world application of knowledge, and *constructivism* in doing projects that

“create” and “organize” knowledge (Knight, 2006). Constructivism places the responsibility and action of learning with the student. The students’ experience and social interactions are used to connect new knowledge to prior knowledge. Instead of just telling knowledge, a connection is made to how it is useful in our lives. The learner’s prior experience and understanding must be used so that the students can reflect and integrate new knowledge (DeLay, 1996).

My specific field is educational technology, but the wider field is K-12 teaching and learning. Learning in educational technology has taken a huge turn in the last 5 years. With the advent of Web 2.0, social networking, blogs, wikis, collaborative tools such as GoogleDocs, people are starting to use an intriguing term: personal learning network (PLN). A personal learning network is “a group of people who can guide your learning, point you to learning opportunities, answer your questions, and give you the benefit of their own knowledge and experience” (Tobin, 1998). A personal learning network in the Web 2.0 read-write participatory web age includes tools such as blogs, RSS readers, Twitter, and other social networking tools.

My PLN includes reading a collection of almost 100 blogs in my RSS reader, five or six educational technology blogs, subscribing to a small cadre of close videoconferencing colleagues on Twitter, communicating daily with videoconferencing buddies on Skype (about eight close colleagues), several email newsletters, and the people who comment on my blog. My PLN is at hand for learning, asking questions, giving tips, responding to questions. This example of my own learning shows my connection to constructivism, particularly social constructivism. Social constructivism particularly emphasizes that the construction of knowledge happens within a social and cultural context. As learners interact and discuss knowledge with each other, each

understanding is clarified and integrated into prior knowledge (DeLay, 1996). This process happens regularly through my personal learning network.

My definition of constructivism is that knowledge is built in my head through experience, reflection, making connections to past knowledge, talking to colleagues and friends to process and create understandings and concepts. I believe students construct knowledge when creating a representation of their understanding. As a learner, I need to make charts, visuals and organizers to grasp knowledge. I believe that articulating my understanding clarifies it and solidifies my understanding. I believe it is important to make connections to previous knowledge, to past ways we have experienced the concept or idea.

Delay (1996) states that "pedagogically speaking, then, students learn not because teachers teach (the "open head, insert knowledge" assumption) but because they have taken prior knowledge and reworked it in light of new information and experience" (p. 77). In this scenario, the student should be working harder than the teacher. The role of the instructor is to set up experiences, resources, and activities that create an environment conducive to the students constructing their own understanding. The learning occurs during the process of experiencing many activities.

Experiential learning, project based learning, choice, a focus on process, and social constructivism are all important pieces of a good education in my view. Because I work in technology, which is constantly changing, change is not an issue at all for me. Pragmatists also are not afraid of change. While I reject the concept of uncertainty of knowledge, I accept and prefer many of the methodologies that come from constructivist and pragmatist philosophies of learning.

Connected and Constructed Knowledge

In working through the research and learning competencies, I wanted to further understand the nature of knowledge and how we come to know. As part of that further investigation, I began reading *Women's Ways of Knowing* (Belenky et al., 1986). Belenky's (1986) study was the first of its kind to address the problem of knowledge theories created from studies of mostly men; i.e. Perry's work (1970). Their study interviewed 135 women from all levels of life and education to understand what was "important about life and learning *from her point of view*" (p. 11).

Belenky (1986) makes a distinction between separate knowing, the idea of separating oneself from the knowledge and rising above it, and connected knowing, which includes procedures for "gaining access to other people's knowledge" (p. 113). Connected knowers see the other "not in their own terms but in the other's terms" (p. 113). Connected knowers learn through empathy; separate knowers learn through explicit instruction on how to adopt a different lens of a specific discipline (Belenky et al., 1986). Connected knowers learn within their experience. Belenky (1986) suggests that "in institutions that are more progressive, or less rigorous (depending on one's point of view), students may be encouraged to develop their own curricula, exploring their own self-interests, and to use their own personal experience as a source of knowledge" (p. 123). The Leadership program certainly embodies this type of knowing.

Constructivist knowers see theories not as truth but "models for approximating experience" (p.138). My journey in the Leadership program has extended from an inability to identify a theory, to seeing the usefulness of theories as well as their inadequacies. Theories can help us think about experience and analyze occurrences to improve practice. But they aren't the final "truth." I do not see science as "absolute truth

or a procedure for obtaining objective facts” (p. 138); instead as a way of examining the world. Science gives a method for looking at the world. But other questions and contexts can impact our understanding as well. Multiple sources of knowledge expand understanding. “Questions and answers vary throughout history, across cultures, from discipline to discipline, and from individual to individual” (p. 138). Constructivist knowers put systems of knowledge “to their own service. They make connections that help tie together pockets of knowledge” (p. 140). This aptly describes my experience in the Leadership Program, as the separate competencies have begun to blur, overlap, and inform each other. The connections are exciting and interesting, and inspire a “never-ending quest for learning” (p. 140).

Constructivist women find that “learning that their ideas can be taken in and put to use – that their ideas can spark interest among unknown others – is an exhilarating and confirmatory experience” (p. 146). I already experience this with my blog, and hope to experience it further as I begin publishing in peer-reviewed journals.

Connecting Technology Integration to Current Instructional Strategies

When designing my work for the learning competency, I wanted to examine in detail several current instructional strategies that I hear about in my work. I firmly believe that educational technology professionals need to have their work grounded and connected to the instructional learning that teachers are receiving in other workshops. If we can use the same language and concepts they are learning, it will be easier for the teachers to integrate technology in their instruction. In addition, it will make the integration of technology more successful by using known effective learning strategies. The four instructional strategies I examined were Marzano’s Instructional Strategies That Work, Brain Research, Differentiated Instruction, and Universal Design for Learning.

Marzano's Instructional Strategies That Work

The Classroom Instruction That Works began with nine research based strategies for instruction that were shown to improve students' achievement scores (Marzano, Pickering et al., 2001). Later these strategies were expanded and reorganized into eleven strategies (Pitler et al., 2007). The strategies fit into four categories. The first is on what students will learn, and the strategy is for Setting Objectives. The second category is on providing evidence of learning, and the two strategies are Providing Feedback and Providing Recognition. The third category covers acquiring and integrating learning, with strategies of Cues, Questions and Advanced Organizers; Nonlinguistic Representations; Summarizing and Note Taking; Cooperative Learning; and Reinforcing Effort. The final category is where students practice, review and apply learning and the strategies are Identifying Similarities and Differences, Homework and Practice, and Generating and Testing Hypotheses. Marzano's work in particular helped me understand how to apply research to classroom practice. He conducted a meta-analysis of research studies on student achievement and averaged the effect sizes for each strategy. He found that while many teachers may think they are using a particular strategy, if they can refine their practice along a continuum to better achieve the recommendations for each strategy, student achievement can be improved (Marzano, Norford et al., 2001).

In all my research and learning for this competency, Marzano's work made the most direct impact on my current practice. One of the ways that I directly impact teaching in classrooms is through the collaborative videoconference projects that I organize for our teachers. In addition, I annually publish revisions to a project template booklet that is similar to cooperative learning structures (Kagan, 1994). The templates allow teachers to plug in their content and use the format to plan and organize their

videoconference. Section B of my artifacts includes this booklet before and after learning about the Marzano strategies and applying them to videoconferencing. In addition, due to space limitations in my booklet format, I was not able to include all of the new project template ideas generated by this work. After finishing my portfolio for the Leadership program, I intend to publish a book for teachers on using these template structures in all types of videoconferencing.

Brain Research

Another area of investigation during my work on this competency was that of brain research (Jensen, 2006; Willingham & Lloyd, 2007). Current teacher workshops and educational conferences are replete with references to brain research and brain-compatible teaching. Brain research includes many concepts. Learning changes the brain's structure. Brains can be enriched and changed throughout our whole lives. Our genes influence our lives and our lives influence the expression of our genes. It is possible to influence genes on purpose. The human brain is highly dependent on experiences. Jensen (2006) defines enrichment as "a positive biological response to a contrasting environment, in which measurable, synergistic, and global changes have occurred" (p. 47). To maximize someone's potential, changes should be made to enhance the environment, and the result is called the "enrichment response" (p. 48). Novelty creates new connections in the brain and enhances the existing connections. The factors that contribute to enrichment are physical activity; novel, challenging, and meaningful learning; coherent complexity, managed stress levels, social support, good nutrition, and sufficient time (p. 66).

Jensen's (2006) suggestions are myriad for educational applications of brain research. Much more real-world learning should occur. Students need more recess and

physical activity time. Learning experiences should activate curiosity and challenge the imagination. Complexity such as variety, challenge and unpredicted changes make for better more complex brains. School should be interesting and challenging to students; full of variety. The physical environment should reduce stress and students should be taught life skills to deal with stressors. Students need to feel positively affirmed by a social group. Children's nutrition is critical to their learning. Students need sufficient time with a contrasting environment to improve their brain functions (Jensen, 2006).

Knowing that the brain's potential can be influenced, there is a moral responsibility to maximize potential in all students. The recommendations are very similar to that of differentiated instruction (Tomlinson, 1999); and the concepts fit hand-in-hand. Focusing on the students' interest, and creating individual yet challenging activities are also important parts of differentiated instruction. However differentiated instruction does not also include the focus on the physical environment, exercise and nutrition. Still Jensen's work describes an ideal learning environment to make a difference in the lives of all students, especially those from poor environments (Jensen, 2006).

So what can I do? Most of my time at work is spent coordinating and training teachers on how to use videoconferencing in their classrooms. I am not directly involved in a classroom to apply these principles, but I can make sure that my own teaching and workshops reflect these principles. In longer technology workshops, I make sure that the participants have time for movement, stretching and exercising. I include variety, choices, and challenging activities in weeklong workshops such as 123 VC: Jazzing Up Your Curriculum with Videoconferencing. I also realize that the videoconferences I offer and coordinate for our local students contribute a small amount of a "contrasting

environment” to our local schools. A contrasting environment is where the student experiences a “contrast” from what he or she is usually getting. The project Monster Match comes directly after our state testing. Classes design a monster; write a description, and send it to their partner class. Both classes make each other’s monsters, and then videoconference to see how they match, and to identify similarities and differences. Students learn how to follow and give clear directions. This project is an example of providing a contrasting experience to the state testing and preparation. These short time videoconferences are only a drop in the bucket of contrasting environments that students need. However, they are one of the ways that I can make a difference in the lives of students. Jensen’s (2006) work inspires me to continue to create and design activities that can be used in all curriculum areas for all levels to maximize the reach to all students.

Differentiated Instruction

My learning about differentiated instruction (Tomlinson, 1999) was also inspiring. At one level, I better understand the professional development that my teachers are receiving. This allows me to better integrate the professional development that I offer into what teachers are learning in other workshops. At another level, there is one particular workshop that I offer that has a striking connection to differentiated instruction.

123 VC: Jazzing Up Your Curriculum with Videoconferencing is a grassroots collaborative learning community that began in 2005. Ken Conn and Bennie Tschoerner, members of the Texas Distance Learning Association, invited me to participate in a week long workshop on videoconferencing and collaborative learning tools. Since that humble beginning, the learning community has grown to encompass three weeks of workshops

with 3 countries, 5 time zones, 5 lead facilitators, 24 locations, and about 300 participants in the summer of 2009.

The “Jazz Workshop,” as affectionately nicknamed by the participants and facilitators, is a unique blend of collaboration and constructivist learning, mediated by videoconferencing and Web 2.0 tools. The workshop includes time for local training on collaboration tools and videoconference resources, simulations, guest speakers, and small group time. In the simulations, participants role play students experiencing popular videoconference formats such as Read Around the Planet, a celebration of reading; Monster Match, a descriptive writing exchange; MysteryQuest, a geography game; and the ASK literature based program where students interview an author or specialist. The guest speakers include videoconference content providers such as zoos, museums, and other organizations who offer quality lessons to schools. During small group time, 4-6 teachers at two locations meet to plan a videoconference collaboration that meets their curriculum goals. Throughout the week, participants learn to implement videoconferencing and collaborative tools into their curriculum.

One particular section of this workshop is called “local time.” This is downtime when there is no shared learning via videoconference; instead each local facilitator leads and guides the learning of their participants as dictated by their goals and the skills of the facilitators. Each year since the inception of “Jazz” in 2005, we have struggled to assist new facilitators in understanding how to organize and facilitate their local time. Some technology integration trainers are not familiar or well versed in instructional strategies such as differentiated instruction. For them, this type of instruction is particularly challenging. However, as lead facilitators, we have goals for the local participants, as

well as for the new facilitators to grow in their understanding and improve their instruction as they learn from the other facilitators in the workshop.

Local time has many opportunities for differentiating instruction. Lead facilitators differentiated instruction for the new facilitators by gauging their ability and skill level, and adapting the preparation required, the instruction they contribute to the workshop, the individual sessions for learning via email, phone, Skype and videoconferencing, by daily debriefing and teaching to the needs of the facilitators, and by changing the levels of responsibility in the workshop based on their need. In addition, all facilitators should differentiate instruction for their local participants. We want them to differentiate instruction by giving the participants choice in their reflection responses; choices in the activities during local time; time to think and reflect and apply their learning; providing resources dependent on the teachers' interest; and adapting instruction throughout the week as needed. We lead facilitators have struggled to figure out how to assist new facilitators with organizing their local time. The lead facilitators are so comfortable with the technologies and tools that we each easily adapt to the needs of the participants and are comfortable with multiple types of instruction and activities occurring at the same time. We have tried giving new facilitators a full menu of options from which to choose their activities. Finding this overwhelming, in the summer of 2009, we listed only the basic required local activities. However, facilitators with more skill wanted more choices and options for their local activities.

As I learned about differentiated instruction, I realized this described exactly what the veteran facilitators in Jazz were doing during local time. So I created a little PowerPoint overview that we will use with facilitators in 2010 to assist them with applying differentiated instruction to their local time. See artifact section B for the full

PowerPoint. The slides give a quick overview of differentiated instruction, and list how we differentiate instruction for both facilitators and participants. Pictures from the workshop are sprinkled throughout to assist new facilitators with envisioning the process at their site. Finally, the facilitators are challenged to think through the process. What are the essential goals of local time? What are the areas where the participants' differ in skill, understanding, experience and interest? What are the specific technology goals they want to meet? Some have favorite tools they want their participants to experience. Finally, what tool is most comfortable for organizing the local activities? Some facilitators build an activity list on the fly; some use PowerPoint to give participants choices; others use a wiki to organize and change the links daily dependent on participants comfort level.

This connection between differentiated instruction and the local time during the Jazz workshop was so exciting for me. It provided a framework to discuss a challenging problem for this five year old innovative workshop. This shows just one example of how my learning is improving my instruction.

Universal Design for Learning

Finally, Universal Design for Learning is another currently popular instructional strategy commonly connected to educational technology. Rooted in the universal design movement for architecture, UDL is an approach for designing instructional materials and methods to reach all learners (CAST, 2009; Rose & Meyer, 2008). UDL is connected to and supports the concepts of differentiating instruction (Tomlinson, 1999), constructivist learning (DeLay, 1996) and cooperative learning (Kagan, 1994). It is built on the concept of learning with three elements or networks: recognition of information, application of strategies to process the information, and engagement in the learning task (Vygotsky, 1978). UDL calls these the recognition networks, the strategic networks, and the affective

networks, all of which provide multiple means of representation, expression, and engagement. The intent is to provide students choices and flexibility in how they access the content, how they express their learning, and how they engage with the learning. These three areas fit nicely with differentiated instruction's modification of content, process, and product.

UDL however, has a greater focus on educational technology than differentiated instruction based on my reading. UDL proponents see digital text and digital materials as the way to design learning for all students universally (Pisha & Stahl, 2008; Stahl, 2008). Technology provides the ability to contextualize assistance for students with vocabulary and comprehension strategies. Students can hear or see the text as needed. Technology tools such as highlighters and font changes can make the text easier for students challenged by print based materials. The model lessons suggested by UDL are very similar to the work we do in promoting educational technology applications in schools (Rose & Meyer, 2008). Knowing the language of UDL makes it easier to connect our current practice to the concepts that teachers are learning in other workshops.

Each of these strategies contribute to the polishing and improvement of my instructional practice. This type of learning will continue as I endeavor to connect my own instruction to the emphasis on specific types of professional development in the schools that I serve.

Situated Learning

In addition to learning specific instructional strategies, I learned about various learning theories for this competency. One of the new theories that I learned about is situated learning. This theory thoroughly intrigued me, for the obvious and amazing connections to the collaborative workshop mentioned earlier, 123 VC: Jazzing Up Your

Curriculum with Videoconferencing. In this section I will review some of the connections between Jazz and situated learning. The article in Artifact section F provides additional detail.

Hanks (1991) suggests that “learning is a process that takes place in a participation framework, not in an individual mind” (Lave & Wenger, 2005). Lave and Wenger (1991) describe learning within a situation, within a community, as situated learning. A key component of situated learning is “legitimate peripheral participation”, which means that newcomers to a world of knowledge or skill begin by participating with an old-timer (expert learner), and by virtue of that peripheral participation they grow to become an old-timer. The peripheral participation is legitimate in that the relationship is either formalized (i.e. apprentice) or informally understood by expert and newcomer. This framework of situated learning for learning communities uniquely applies to the “Jazz workshop”.

To support this workshop, 5 lead facilitators each mentor a group of 3-4 facilitators. The lead facilitators organize the activities, delegate tasks such as leading a simulation, preparing materials, and mentor the facilitators in best practice. The work of preparing for the workshop and delivering the workshop is accomplished together. This way the newcomers have “access” to the old-timers and learning occurs as the work is accomplished. Preparation for the workshop includes several meetings beforehand where we walk through the each part of the workshop. During the workshop, newcomers may lead a section, with the lead facilitator on hand in case questions arise. After each day, the facilitators debrief with their lead facilitator. As we talk through how the day went, each facilitator is learning, reflecting, and refining her training practice.

Lave and Wenger suggest that in a learning community, there is a set of relations between the newcomers and old-timers through the cycles of learning. “The community of practice encompasses apprentices, young masters with apprentices, and masters some of whose apprentices have themselves become masters” (p. 57). The learning occurs across the layers of relationships, between near-peers, and across learning cycles (See Figure 2). Within the Jazz Workshop, the knowledgeable skills in facilitation, technology training, and collaborative technology tools move in and across each circle of learning. Everyone contributes to the continual improvement of the workshop and therefore our continued practice of implementing videoconferencing in the curriculum.

Lave and Wenger (1991) suggest that a community of practice is “an activity system about which participants share understandings concerning what they are doing and what that means in their lives and for their communities” (p. 98). The Jazz workshop is a community of practice around videoconferencing and collaboration. We have a shared vision of using videoconferencing to connect students for meaningful learning and collaboration. Instead of transmitting this vision through traditional acquisition of knowledge via instruction, “learning occurs through centripetal participation in the learning curriculum of the ambient community” (p. 100). Participants and new facilitators alike have access to the community of practice, and the thinking out-loud of the community leaders via their blogs, the videoconference programs they share, and via microblogging on Twitter.

The learning within the community is enhanced by the continual introduction of newcomers. The newcomers provide inexperience, “an asset to be exploited” (Lave & Wenger, 1991, 117), which provides a fresh look at our practice. Their involvement encourages reflection. Their contributions polish our practice. In this way, even the lead

facilitators' participation is legitimately peripheral in that the community is constantly changing, growing, learning.

These connections between situated learning and the Jazz workshop are striking and strong. I found this theory exciting and stimulating to learn about; and studying the theory helped me realize the strength of the Jazz community and why it works so well.

Learning Theory Connected to Teaching Online

Another way that I considered various learning theories (Davis, 1999; Fried et al., 2005; Kearlsey, 2009; Knowledgebase, 2009) is through the lens of teaching online. I have been teaching online since 1999, with usually 20-40 participants attending my online classes each year. With that experience, I have refined my practice into a model that works well in the online classes that I teach, that my colleague teaches at Berrien RESA, and for all of the Adventist Virtual Learning Network online classes. Our online classes consist of two weekly discussion areas: one for discussing the readings, theory, and research in the topic of study; and one for applying the learning. Other sections of the online materials include resources to explore based on interest and instructional need; and resources to support classroom management using educational technology.

The first learning theory that applies to our online classes is that of adult learning theory (Cercone, 2008). Knowles' (1984) theory of adult learning includes the concept that many adult learners prefer choice and the ability to direct their own learning. In our online classes, we give participants choices on the readings as well as the application of their learning. They can choose the tools and projects to apply educational technology to their classroom experience (Ally, 2004). The second principle is that adults have a rich experience which can be used as the basis of learning. This principle is similar in constructivist learning theory (DeLay, 1996). In our online classes, each discussion

question requires the participants to connect their reading to their past teaching experience. Their background and experiences are validated and included as part of the online learning experience. A third principle is that adult learners tasks need to be tied closely to their learning goals and their work. In our online classes, we encourage participants to integrate their work into the assignments. When teachers are taking a class during the school year, we encourage adaption of assignments so they can try the new concepts in their classrooms and report on how the new strategy worked with their students. If participants cannot see an immediate application to their work, we co-design the assignments to create a learning activity that is connected to their work. A fourth principle is that adult learners want to know why they should learn something and how it will benefit them. They need to see an immediate application to their work. This principle ties in with the third principle. In our online classes we encourage participants to apply the readings and application assignments to the instruction in their classroom. If they cannot see the connection, we nudge, encourage, and adapt as needed so that the learning tasks are connected to their work.

Another learning theory that applies to my online teaching is Vyogtosky's (1978) zone of proximal development. Providing a challenging task with some assistance stretches the learner to new abilities that could not have been achieved on their own. Within the online environment, I challenge my participants to new experiences. Often they feel that they cannot accomplish the tasks on their own. During the first week or two of the online classes, the teachers need extra assistance. They receive it from their peers in the online discussion; or from me as the instructor via email or sometimes via the phone. This assistance helps the teachers move beyond their initial beliefs about their

ability. By the end of the course, they are invariably proud of their accomplishments and more able to tackle new and challenging technology tasks on their own.

Cognitive learning theories also provide insight into what occurs in my online courses (Gillani, 2003). Participants in my online courses construct their understanding of how educational technology tools can best be integrated in their curriculum. They do this by reflecting on the readings, resources, and activities. Advance organizers and scaffolding provides support as they integrate the new knowledge into their teaching practice. The participants create lesson plans and activities for their students; applying the new knowledge in their classrooms.

These learning theories provide a way to reflect on my own teaching and how it fits into the wider picture of how teachers learn to apply new practices. The online environment provides a unique method to create opportunities for self-directed learning and student-centered choice-driven experiences. These principles provide the foundation to my online learning success.

A New Learning Theory: Connectivism

A new type of learning appears to be emerging in the online environment. With the access to knowledge, people, and learning tools provided by the Internet, are people capable of learning differently? Is a new theory of learning required to accommodate the new methods of learning available via the Internet? Siemens (2005) suggests the answer is a resounding yes. Connectivism is the name of the new learning theory designed for the digital age. Knowledge is spread across nodes, which can include ideas, communities, fields of knowledge, and people. Even within people the knowledge is distributed across the brain. In a startling new idea, learning may even reside in non-human appliances. Learning and knowledge rest on a diversity of opinions. Learning is a process of

connecting specialized nodes of information sources to make sense of the knowledge. Decision making is an integral part of learning. The learner chooses what to learn and how to make meaning of the incoming information. In this new learning mode, the core skills of the learner include the ability to see connections and to nurture and maintain connections to provide continual learning. The goal of these knowledge networks is to find and maintain current and accurate knowledge (Siemens, 2005).

Four components are critical for distributed or connective knowledge (Downes, 2005). Openness is essential and must provide a mechanism that allows all perspectives and ideas to be heard and interacted with by others. Knowledge is produced by interactivity, not just aggregated. Together, people interact to create and produce knowledge. Diversity is indispensable so that all view points are heard with the widest possible spectrum. Within this connected framework, individual knowers contribute with autonomy. They choose to contribute on their own according in the context of their own knowledge, values and decisions.

An example of this kind of learning online is the concept of tagging. Tagging allows people to tag posts, pictures, links, and many resources with a tag. Aggregation tools such as RSS readers, Technorati, or Google Alerts allow the content to be aggregated. From this aggregated data individuals can seek patterns to gain understanding (vs. individual elements) (Siemens, 2006). Learning is based on conversation and interaction, on sharing, creating and participation and is embedded in meaningful activities such as collaborative work (Downes, 2006). Connective learning includes the concept that knowledge is stored in your network of knowledge sources instead of one person trying to “know everything” (Tracey, 2009, March 17). A person stores knowledge in people within their network or within networked resources.

A critical response to this theory suggests that connectivism isn't the only way to learn. Instructivism is still alive and well because it is efficient. Sometimes specific knowledge is required and must be passed on quickly (Tracey, 2009, March 17). Tracey suggests that the three types of learning, instructivism, constructivism and connectivism are complementary and required at different times and in different learning scenarios. Each type of learning has its place.

Connectivism is an exciting learning theory as it integrates the digital learning I am immersed within in my work. My learning is currently occurring in four major fields: leadership, education, educational technology, and videoconferencing. Learning within these fields includes book learning, group and community learning, and networks such as my Leadership and Learning Group, professional organizations such as TWICE, NECC, and MACUL. The technology tools that bring my learning networks together include Skype, Twitter, blogs, Ning communities, as well as the email, phone, videoconferencing, and face to face conferences and workshops. My learning is stored across these networks. Some knowledge I am aware of but is stored in colleagues with expertise in various areas. When I need this knowledge, I interact with them to find how that knowledge applies to my need. Connectivism aptly describes my wide network of learning.

Improving My Practice

My work on this competency led to improved and new practice in educational technology workshops, in videoconferencing collaborative projects, and in the awareness of how my current practice intersects with learning theory.

My overall study of learning theory and instructional strategies has grounded my work in educational technology within the frameworks of learning theories and current

research-based instructional strategies. This connection will create more intelligible training to teachers who are overwhelmed with so many new initiatives. If instructional technology workshops can integrate what they are learning in other staff development, it will reinforce their other learning and make it easier to integrate technology. In addition, my study of Marzano's strategies resulted in new instructional templates for using videoconferencing. My understanding and awareness of learning theories is changing and refining my practice to more effectively use the principles of the learning theory. I am now able to connect my presentations, workshops, and courses to learning theories and instructional strategies which teachers are learning.

Future Learning

As is always the case with a Leadership competency, I end the round of study with a feeling of the vastness of possible learning. I have only scratched the surface of some of the learning theories. Further reading will continue to deepen my understanding. My work in this competency has laid the foundation for continued reading and learning. I want to learn more about Paulo Freire's work on teaching and learning (Freire, 1971, 1998). I am currently taking a massive open online course from Siemens and Downes on the connectivism learning theory (Siemens & Downes, 2008, November 24). I want to further understand how educators are connecting the current push for using student data to strategies such as differentiated instruction. I want to continue to understand views on various ways of knowing and the beliefs about learning and knowledge that underlie research methods (Belenky et al., 1986). In short, the learning has deepened, but will continue as I build on the habits acquired in my Leadership work.

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