

The cover features a complex geometric design with overlapping shapes in blue, red, green, and yellow, separated by light blue borders. The background is a solid light green.

Critical Thinking for College Learners

***Blended and Online
Activities in Multiple
Disciplines***

***Edited by
Lynae E. Warren***

CRITICAL THINKING FOR COLLEGE LEARNERS

BLENDED AND ONLINE ACTIVITIES IN
MULTIPLE DISCIPLINES

EDITED BY LYNÆ E. WARREN

EMERSON  BROCKWAY
BROCKPORT, NEW YORK

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Emerson & Brockway Publishing
529 White Road
Brockport, NY 14420
www.emersonbrockway.com

Book Layout ©2013 BookDesignTemplates.com

Critical Thinking for College Learners: Blended and Online Activities in Multiple Disciplines/ Lynae E. Warren. —1st ed.
ISBN 978-0-9905885-1-1

CONTENTS

CHAPTER 1

Baccalaureate Degree Preparation in the Nursing Profession:
The Importance of Developing Critical Thinking in Online and
Hybrid Learning Environments to Engage Professional Adult
Learners
by Elizabeth Heavey, Ph.D., R.N., C.N.M.....9

CHAPTER 2

Using a Hybrid Instructional Model to Develop Critical Think-
ing Skills for Candidates in a Course on Becoming a Principal
by Dr. Jeffrey Linn.....31

CHAPTER 3

Enhancing Critical Thinking Skills through Activities that Allow
for Self-Reflection
by Dr. Frank McDonald.....57

CHAPTER 4

Undergraduate Education Students Exploring Digital Image
Technology through a Blended Learning Exploration
by Dr. Kimberly Roff.....79

CHAPTER 5

Engaging Mathematics Teachers in Critical Thinking Activities
in an Online Setting
by Dr. Lynae E. Warren.....95

CHAPTER 6

A Transformation to Blended Learning and the Impact on
Teaching and Learning
A conversation between Jeff Linn & Lynae E. Warren113

INTRODUCTION

BY FRANK McDONALD AND LYNÆ E. WARREN

BACKGROUND

Learning opportunities for students in the 21st century are incredibly exciting. With the development of virtual worlds like Second Life, and free, open-source learning opportunities which are provided via Massive Open Online Courses (MOOCs), the frontier for learning is broader and more varied than ever before. It is an exciting time to explore new ways of creating and sustaining learning communities. Classrooms are no longer limited to site-based meetings. Students and teachers across the globe are coming together in ways that provide learning opportunities for students that could hardly have been imagined in the past. Instructors who are on the forefront of creating engaging opportunities for learners in this way are definitely pioneers and innovators who are advancing learning in exciting ways. The research that is being done regarding such modes of learning is definitely on the cutting edge.

Most of the teaching pioneers are incredibly thoughtful and innovative. Many of their goals include connecting with students in ways that are meaningful to 21st century learners; providing learning opportunities that reflect the technological access that many learners use daily; and reaching beyond

the boundaries of time and space that formerly limited learning opportunities. Even as such pioneers are exploring the most recent innovations, most faculty are not rushing to embrace the innovations. Many are still grappling with the notion of teaching online. Allen and Seaman (2012) surveyed over four thousand faculty representing a cross-section of all types of institutions of higher education, regarding their perspectives on online learning. Approximately $\frac{1}{4}$ of the faculty who responded taught at least one online or blended course. There was still a measurable amount of fear and anxiety about online learning among those who were surveyed. There was a higher level of anxiety and concern among those who had no experience teaching in an online setting. There was a higher level of excitement about online learning among those who had experience teaching online. There was concern even among those who taught online that students were not learning as much in the online setting as in the face-to-face traditional setting. This was not found to be the case in the 2010 meta-analysis done by the Department of Education. In fact, it was found that students who learn in online classrooms are not at a deficit to those who learn in face-to-face settings. The analysis indicated that students who learn in online settings learn at least marginally more than students in face-to-face settings.

By nature, online classes require students to be more self-directed. In addition, it has been stated by students that they work harder on responses in the online setting than in the regular classroom because peers will be reviewing their work, rather than just the professor. There is a fear of coming across to peers as not understanding that causes students to be more thorough and thoughtful in responses. (Sakshaug, 2010)

Online learning and teaching are modes of course delivery that are no longer novel. There are entire institutions of higher education devoted to online learning. There are faculty who teach entirely online. They develop communities of learning and get to know their students in very positive, connected ways. Thelin (2012) writes about the role of online learning in higher education. It's a very real, meaningful part of learning and teaching in higher education. Those who create false

dichotomies between learning in a traditional classroom and learning in an online community are seen by Thelin as obstructionists rather than as those who are adding productively to the debate about modes of learning.

THE PROJECT: BRINGING FACULTY TOGETHER TO EXPLORE CRITICAL THINKING IN ONLINE CLASSES

In 2012, a formal pedagogical discussion began between two faculty who were teaching in blended and online formats. There had been casual conversation prior to this time, but at this point, it made sense to the faculty to capture the discussion of their varied experiences in order to share it with a wider range of professors. Specifically, there was an interest in exploring how Dr. Jeffrey Linn had transitioned from a position of being totally opposed to learning and teaching in any environment other than face-to-face, to a position which advocated for engaging students in a blended learning environment. This led to the series of interviews which is captured in Chapter 6.

As those interviews progressed, Dr. Linn found the opportunity to apply for a grant which would allow the two to come together with other faculty at their respective institutions in order to engage in further dialogue about how to engage students in meaningful learning tasks in online and blended learning environments. As a result in the 2013-14 academic year, four faculty members from diverse content areas began meeting to discuss how they would engage learners in critical thinking activities in the content areas of nursing, science education, educational leadership, and mathematics education.

As part of the discussion, faculty developed a shared understanding and working definition of critical thinking. There were several discussions about pedagogy and andragogy, including how the design of learning experiences varied from one instructor to another, depending on the content area. In addition, there were discussions about how design varied from one group of students within a field to another. The nursing professor shared how she

varied instruction based on whether students were beginning in the program or were closer to completion. The developmental level of the students as professionals and what could be expected of them as a result was discussed on several occasions. There was agreement among the faculty that challenging students while providing support was important.

WHAT IS CRITICAL THINKING?

Paul and Elder (2014) defined critical thinking as the “art of analyzing and evaluating thinking with a view to improve it” (pg. 2). Donnelly & Linn (2014) defined critical thinking as a self-guided intellectual process of analyzing and conceptualizing problems and issues by closely examining one's reasoning, assumptions, evidence, beliefs and biases. The members of the group worked from the above definitions and sometimes modified language in order for it to reflect the language in their content area. The overarching theme was the process of evaluating one's thinking through the process of problem solving, based on evidence.

With the focus of critical thinking placed on challenging the students cognitively in the courses, the project faculty worked to create and implement cognitively-challenging critical thinking activities for students to engage in as part of the online component of their courses. The activities were linked directly with learning goals set forth by the faculty. In addition, they were developed in ways that would provide opportunities for students to connect their work to key readings in the course and to ideas put forth by their professors and their classmates.

LOOKING TOWARD THE CHAPTERS

Each faculty member chose different activities for engaging students in critical thinking. There were ways that the activities were successful. In addition, there were components that the instructor found needed changing.

The expertise and learning experiences of the project faculty are illustrated in the chapters, with an eye toward further modification and adaptation depending on the course taught, and depending on the students. The compilation of activities and ideas across content areas, along with dialogue about the experiences of the faculty provide a means by which others may engage in exploring how to implement critical thinking activities in online or blended courses.

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[1]

Baccalaureate Degree Preparation in the Nursing Profession:

THE IMPORTANCE OF DEVELOPING CRITICAL
THINKING IN ONLINE AND HYBRID LEARNING
ENVIRONMENTS TO ENGAGE PROFESSIONAL
ADULT LEARNERS

BY ELIZABETH HEAVEY, PH.D., R.N., C.N.M.

Note: The author wishes to acknowledge that portions of the introduction to this chapter were jointly written with Dr. Kathleen Peterson and included in a grant submission for the purpose of promoting critical thinking in our RN-BSN program.

INTRODUCTION

Nursing is a somewhat unique profession because there are several avenues for reaching the current entry level to professional practice as a

registered nurse. Nursing students with an Associate Degree in Nursing (ADN) complete the same national exam for licensure (NCLEX) as those who complete a Baccalaureate Degree in Nursing (BSN). However, as the complexity of our current health care system increases, the educational level required of nurses within the profession is changing. Changes in science, technology and the nature/settings of nursing practice requires nurses to be more engaged in the learning process, make a greater connection between academic preparation and clinical practice and to be prepared to function outside of the hospital setting (*Educating Nurses: A Call for Radical Transformation* (2010) from the Carnegie Foundation). According to the American Association of Colleges of Nursing (AACN), analyzing, questioning and interpreting available information while utilizing inductive and deductive reasoning are critical aspects of the independent decision making required in the nursing profession (Nagia, Bantz, & Siktberg, 2005). Students who complete an ADN and pass their NCLEX are proficient in the entry level tasks required of nurses but frequently have not developed the critical thinking skills emphasized within a baccalaureate degree program.

Associate degree programs continue to play an important role in promoting access to nursing education, however, all of the major nursing professional organizations support and recognize the need for seamless movement into baccalaureate nursing programs in order to meet the evolving demands for critical thinking within the nursing workforce (AACN, 2014). There is interdisciplinary recognition of the changing educational expectations for nurses among both the nursing and medical professions. The Institute of Medicine (IOM) strongly supports increased levels of education for nurses, stating that an improved educational system that encourages academic progression is essential to achieving this goal (IOM, 2011). The IOM 2010 Report calls for 80% of registered nurses having their baccalaureate degree by 2020. A baccalaureate degree in nursing provides the educational base

for both entry and further advancement within the profession of nursing (AACN, 2014). After graduation 81% of our RN-BSN students reported more responsibility at work while over 50% moved into leadership positions within the profession (2013 Survey). Instructional methods which develop critical thinking skills promote better clinical judgment among practicing nurses and improve patient outcomes.

The health of the people who live in New York depends on the quality and safety of the health care work force, which consists mainly of associate degree and baccalaureate degree prepared registered nurses. In 2012, there were 10,255 graduates from registered nurse education programs in New York (CHWS, 2012). This number has doubled since 2002. Because many of these registered nurses have graduated from associate degree programs this increase has created an even greater need for baccalaureate degree completion programs. Regionally, only 14% of registered nurses in Western New York are baccalaureate prepared. Locally, in our more urban center, registered nurses prepared at a baccalaureate level still only comprise 32% of the nursing workforce which is still lower than state and national goals. Western NY has a much lower concentration of baccalaureate prepared nurses with well-developed critical thinking skills when compared to other parts of the state which directly impacts patient safety and outcomes in the region.

The ramifications associated with low levels of baccalaureate prepared nurses are significant. Critical thinking skills directly impact patient outcomes. Studies have demonstrated that a 10% increase in the proportion of baccalaureate prepared nurses in a health care facility, decreases the risk of patient death by 5% (Aiken, et al., 2014). Studies have also demonstrated that health care facilities with a higher proportion of baccalaureate prepared nurses have lower rates of mortality, hospital acquired pressure ulcers, failure to rescue, and lower lengths of inpatient stay (Blegen, Goode, Park, Vaughn, & Spetz, 2013; Friese, Lake, Aiken, Silber & Sochalski, 2008; Tourangeau, Doran, Hall,

Pallas, Pringle, & Cranley, 2007). The New York Organization of Nurse Executives (NYONE) reports that in New York State, 6,000 surgical deaths could be avoided annually if 60% of registered nurses were prepared at the baccalaureate level with well-developed critical thinking skills (NYONE Executive Summary Ed Bill). Other more general outcomes associated with this increased educational level include a nursing workforce prepared to think critically at a level required to meet the changing and increasingly complex health care demands and an improved ability to promote the science of nursing (IOM, 2011).

The nursing profession supports critical thinking and lifelong learning irrespective of the educational level achieved at entry into clinical practice. In order to reach optimal outcomes in patient care, it is imperative to engage nurses prepared with an associate degree into a culture emphasizing the importance of developing critical thinking skills and continuing professional education which includes the completion of a baccalaureate degree (Tri-Council for Nursing, 2010). Online RN-BSN baccalaureate completion programs are an essential aspect of providing a flexible, feasible option for the development of critical thinking skills and the timely completion of a baccalaureate degree. Simply achieving a baccalaureate degree is not adequate. Nurses must be challenged to think critically within these online environments with engaging educational pedagogy.

At the College at Brockport, The Department of Nursing has been in the forefront of hybrid and online education with the current RN to BSN completion program. Faculty members are well versed in the specialized teaching methods required for online and hybrid adult education programs. They frequently make local, regional and national presentations relating to engaging teaching methods for online learners. This writer chose to utilize additional time and resources made available through a SUNY IT grant to further examine the quality and pedagogy behind one of the population health based courses offered online in the RN-BSN completion program. As online learners, nurses

seek high-quality professional development that provides them with the opportunity to acquire knowledge, prepare for certification exams and enhance their critical thinking skills (Carter& Rukholm, 2008). This particular course, Community Based Epidemiology (NUR 471) is one of the culminating courses in the program, is offered completely online, and requires a two credit hybrid course to be taken concurrently (Clinical Strategies for Community Based Epidemiology, NUR 472). All students in the class are practicing registered nurses with an average of 12.5 years of experience. Ages ranged from 21-60 years with the majority of nurses working in hospital settings throughout their career thus far. Approximately 20% were born outside of the US, including some who completed their previous associate degree outside of the country.

During the course of the grant, the over-arching organization and educational goals of the course were examined and modifications were made in assignments which were determined to need improvement. Additionally, new clinically relevant assignments were developed using a problem based learning approach. Problem based learning promotes clinical decision making using critical thinking by encouraging collaboration, motivating students to engage with relevant content and anchoring learning in real world contexts (Anderson & Tredway, 2009). Students evaluated their experience completing the assignments and how the process contributed to their learning goals.

Anonymous student feedback was collected from students after the course was completed. The overall success of the initiative in promoting critical thinking was very positive. Students shared that the Wiki assignment (described further below) was one of the most effective in asking them to think through other perspectives and was readily applicable to “real life” clinical scenarios. They requested more assignments in this format and reported talking with both coworkers and

family members about the topics we covered. Several students reported using the language, questions and terminology we covered in class with patients in their role as professional nurses before even completing the class. I even heard back from one of our graduates about how this assignment helped her manage a difficult work situation that had nothing to do with the clinical topic but she was able to apply the broad principals and communication skills we utilized to dissipate a potentially violent situation. I am encouraged to see my students apply some of the ideas we discussed within a broad range of professional settings.

The rest of the chapter discusses some of the specifics involved in the Wiki assignment followed by a lessons learned section which includes my assessment of the positives and negatives of the assignment and how or if further adjustments will be made. This type of assignment could be modified to work with many different types of subjects if the scenario was written to reflect an issue in which perspective taking is critical to good outcomes. When writing the scenario the instructor should develop key objectives or issues students should identify either independently, or with the instructor's assistance, during the course of the assignment and ensure that the scenario is set up to help students confront their own bias and preconceived notions as they creatively address how the scenario will unfold.

This assignment has worked so well I have made an adaptation of my own involving a disaster simulation which is also working well. Students are again put into groups and asked to triage vaccines and ventilators in an outbreak scenario, then additional information becomes available as the outbreak progresses and they have additional choices to make, finally, there is a last round of new information given to the groups when we meet in person and the ramifications of the choices they made are discussed. It is these ramifications that many students do not anticipate. The scenario is set up so that every choice they make produces outcomes they have to manage both positive and

negative. I have yet to have a group that doesn't make some modification of their choices after the class discussion. These discussions can be difficult to bring to a close as students become very intense and involved to the point where I remind them that this is not real. I then ask them to consider if they find it this stressful to even talk about these decisions, imagine what they would be experiencing if they were actually in the situation. This leads beautifully into a discussion about the difficulties in protecting first responders physically and psychologically during a disaster situation.

Many students left that day and went back to their place of employment to seek out their institution's disaster plan. Several signed up to participate as volunteers in the disaster drills being conducted in our area. The enthusiasm was such that I created an optional discussion area in the online portion of the class and many students posted and commented on what they discovered at their own place of work, several even looked into the utilities and disaster plans for their city or state of residence. The students loved this assignment and also listed it in their program evaluations as one of their favorite and most effective assignments to promote critical thinking. I find that engaging students to critically think with problem based learning and creative perspective taking is a very effective teaching tool and hope you will find it useful as well.

DETAILS ABOUT THE WIKI ASSIGNMENT TO PROMOTE PERSPECTIVE TAKING AND CLINICAL DECISION-MAKING

Students were assigned to teams of approximately six people and given a scenario and directions within a WIKI format (interactive document/blog). Each student was to read the scenario and then add to the "story" in either the voice of the main character or another character's perspective. Students are told they can be any character they

choose EXCEPT the health care professional in the scenario. All students were required to make an original post and at least two additional posts at different times throughout the week. The instructor logged on to the WIKI daily to read student posts and ensure that the scenario was running logically. In addition, at various points, the instructor would introduce characters or elements to the story which required students to consider and respond to additional aspects of the situation. Individual emails were sent to students who posted particularly creative or insightful posts encouraging their thoughts while group announcements were made such as “Don’t miss the latest change in events for Jorge and Lila in this week’s WIKI. WOW!” (Jorge and Lila were “characters” in the WIKI not actual students in the class.)

The WIKI concluded the morning in which the class was scheduled to meet in person for the hybrid component of the Clinical Strategies class (taken concurrently). The instructor used an hour of class time to summarize each group’s “story” and promote class discussion to identify all critical issues that need to be anticipated when patients face disclosure of sensitive and difficult news.

ASSIGNMENT SCENARIO:

A thirty-two year old male patient reports discomfort and blisters on his penis. He is seen and diagnosed with herpes. When told about the diagnosis he states he believes he may have gotten it from his last partner who broke up with him with no further explanation about three months ago. He began dating a woman who he really cares about two months ago and they are going out this evening. He thinks she might "be the one" and does not know what to do. He leaves the office.....

Does he tell her? How does she react? What will he/they do now?

There are no right or wrong answers.

This assignment utilizes two of the QSEN competencies:

Teamwork and Collaboration: Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision-making to achieve quality patient care.

Safety: Minimize risk of harm to patients and providers through both system effectiveness and individual performance.

Clearly one would hope that every patient who shares a sexually transmitted infection diagnosis with a partner encounters an accepting, positive and knowledgeable response. I do allow one of the scenarios to unfold in this manner and we just discuss the stress it causes and how it was resolved positively and is what we hope for in each situation. However, the other scenarios either have a student initiated response that brings up one of the concerns we must screen for and consider or I introduce some of them myself and let the students grapple with what to do next. Students do not see the scenarios they are not a part of but when we meet in person at the end of the week, I present a summary of each group's scenario and then we discuss the key issues as a group. I also post the full scenarios online for anyone who wants to see them after the discussion. Students have typically responded very positively to the assignment. They want to keep talking, there are quite a few "Oh, I never thought of that..." moments and their anonymous feedback after the course is that they want more assignments like this because it makes them think and it was fun.

It is also interesting to me that quite a few times later in the course students refer back to this assignment when we are having a different discussion. For example, later in the course they have a discussion forum in which a homeless woman with active TB leaves the health department before being treated. They are asked how they would handle the situation. The students' initial response is usually an all-out legal quarantine by the health department involving police action as

needed. However, as the discussion unfolds, quite a few students begin to hedge, refer back to this Wiki assignment and try to consider another perspective which is exactly what I am again asking them to do. First, they begin to realize they don't know why the woman left. Very few individuals even ask that question and instead jump right to "this is a dangerous and non-compliant individual." Unfortunately, we also see this quick type of judgment made in clinical and professional scenarios involving nurses. (ie. "That patient is 20 minutes late ~she can reschedule. I am not seeing her." Rather than considering that the patient had to take two buses and pick up her son at daycare because he has a fever and then had to walk the last ten blocks to the clinic carrying him in the rain. Maybe we could figure out a way to see her that day?)

As the students begin to realize they don't know why she left and thus they do not know if an expensive, potentially coercive action is needed, the WIKI assignment is frequently discussed as an example. (For example, a student asked what if the woman left because it is 3pm, she lives at a homeless shelter and her daughter is getting off the school bus with no one to greet her if her mother doesn't get there and her mother is afraid CPS will take her daughter away from her, that is another situation entirely.) Then the focus of the conversation shifts from how to force compliance to how to assist this woman to get the appropriate treatment and negotiate a safer situation for her and the community. It also serves as a reminder to think critically, make sound assessments, and to consider alternative perspectives and options rather than jumping to the first conclusion one might reach.

The original WIKI assignment regarding the young man with the sexually transmitted infection lays the groundwork for future assignments and the importance of developing this skill, particularly when working in community settings. It is reinforced within the context of the discussion regarding the woman with active TB. Threading this skill throughout the course leads to greater retention, application and

consideration being given to perspective taking and anticipation of actual and potential outcomes.

WHAT HAVE I HAVE LEARNED: REPEAT INSTRUCTION IS NEEDED BY SOME

After running this assignment with approximately 70 total students in two classes several challenges became apparent. First, some students needed repeated instruction with this assignment. Students were not accustomed to being asked to be creative rather than citing their work with appropriate references. They needed repeat reassurances that they were doing what was asked of them even after posting an example scenario from another class.

Also, the technical directions needed to be reinforced and some groups were still not able to master the expectations. For example, in order for the scenario to remain sequential the students had to copy the previous post, paste it to their own post and then add to the story. Doing so meant that the student after them could just read one post and follow the story without having to go back and read lots of posts one after another. Eight groups were able to follow these directions without a problem (occasionally someone would mix it up but the person after them was able to go back and get the group back on track and the person who did get off track emailed an apology and did not do so with the next post). I monitored each wiki carefully to ensure that the stories stayed on track and most did. When I create the groups for the assignment, I am careful to distribute both the academically strong and weak students as well as those who struggle with English so the groups are fairly well balanced. The academic skills of the groups did not seem to differ significantly nor did the quality of the end product with the exception of one group.

There was one group with several people who had difficulty with the directions which resulted in my correcting and regrouping the

wiki several times and emailing reminders to please copy and then add to the previous posts several times and still no positive resolution. Group members continued to just post without reading the first posts, sometimes the posts directly contradicted the one before it and the story didn't make any sense or have any congruency. This resulted in a great deal of frustration for both the instructor and the group members who were following the directions and couldn't fully participate in the assignment without the cooperation of the other group members. By the fifth day of not being able to get this group back on track I simply closed their discussion forum and had each person who was not following the directions write up an individual scenario for submission. The groups which were able to maintain the continuity of the posts on their own seemed baffled when they heard from other students about the group that just couldn't seem to master the directions. Interestingly enough, the written scenarios received also lacked insight, perspective taking ability and frequently again did not comply with the directions of the assignment. My own assessment of the situation was that the issue was not the clarity or lack thereof of the directions but rather that this particular group of students simply did not want to bother following them and had difficulty with the exact skills the assignment was asking them to develop further. Unfortunately, this resistance negatively impacted those in the group who were not able to fully benefit from the assignment but did at least take an active role in the final discussion.

Also, the most frequent reminder that had to be repeated was that students could not post as a character who was the health care professional. These students were all adults working as registered nurses already within the profession. They wanted to answer technically and were comfortable telling a patient about this diagnosis but not as comfortable thinking about what the patient will encounter in his personal life or the issues that may arise when this happens. Some even verbalized a general sense that what happens after the office visit isn't the

nurse's job to figure out. When asked to consider how the young man's best friend might reply or how the girlfriend's best friend might interact they had a very hard time not answering straight from a brochure about herpes.

One of my students who is of Indian descent did a beautiful job posting as the young man in question and made the character also of Indian descent. His character was extremely stressed because traditionally sex before marriage is not acceptable in his culture but his mother ended up finding out about his diagnosis because of an insurance billing statement. He set up a discussion about the cultural implications of an STI diagnosis but his classmate who posted after him failed to recognize the issue this might create. She responded "as his mother" in a very accepting tone and told the young man that herpes was a virus but there was medication that could help limit the outbreaks, etc. Even after emphasizing they could not be the health care professional, this student could not step out of this role comfortably and consider what this character might be facing at home. I redirected the wiki in the next post by having the mother hang up the phone with her son and call her husband where her "real feelings" were then expressed. The student who posted after me then picked up that thread and the cultural implications were considered by the group.

In class, when we discussed this scenario I said, "Boy, I sure hope everyone has a mother like Rajan's, she must have been a nurse! But let's think about what this also could have meant for this young man given the cultural background he has in this scenario." The student who did the original post piped right up and said, "Let me tell you there is no way my mother would have ever reacted like that!!" It was a great opportunity to discuss culture in many forms including perceived gender norms in the dominant culture as well as those in other areas of the world. There were students from six countries in the room as well as quite a few students who had strong religious communities. These contributions and thoughts really enhanced the learning of all in the

room. Of course, as the instructor in this situation, one has to ensure that you don't call on or ask students of a particular background to be the voice of that culture. I have found that simply encouraging a conversation about culture in general creates an opportunity for many students to share their thoughts whether based on a personal perspective or professional knowledge.

WHAT I HAVE LEARNED: STUDENTS FREQUENTLY MISS OPPORTUNITIES TO IDENTIFY SAFETY CONCERNS

Each group scenario is allowed to unfold as it is written by the students, unless there are critical issues which have failed to emerge in at least one scenario. Then my role is to introduce some of those issues through a character or turn in the story which then requires the students to respond. If one of the groups does not identify the importance of making a safety assessment, I introduce the concern of violence to oneself or to/from others. Telling a volatile partner about a sexually transmitted infection can involve a substantial safety risk. As the health care professional, we must always do a safety assessment when we work with patients who need to share this diagnosis. In addition, the patient's risk for self-harm or harm of others, particularly the individual the patient believes gave him/her the infection, is a very serious outcome that must be considered. Many students fail to consider this possibility partially because the individual in this scenario in question is male and they don't perceive a risk of him hurting himself or being hurt by a female partner. Occasionally, a group will identify the risk of him hurting the ex who is mentioned in the scenario and no one ever considers the possibility that the ex or the current girlfriend might hurt him or themselves. This again leads to a discussion of gender norms, violence and pre-existing safety concerns exacerbated by stress and anger. Obviously the scenarios don't cover all versions of

safety concerns but when we discuss the scenario in which violence is involved other potential forms of violence and safety assessments are discussed as well.

WHAT HAVE I LEARNED: STUDENTS SEE GENDER NORMS AS “NORMAL”

Gender norms are also discussed because in many instances there is a double standard regarding sexually transmitted infections. If one scenario does not already mention this, I introduce another issue we also must also help patients anticipate which is having an accepting response from a partner after disclosure but then also hearing relief from the partner because in this case, she already has herpes. Since one in five adults has the virus this is not an uncommon occurrence. One might think this would be a relief for the young man, but it may also run into his own double standard which may lead to his ending of the relationship. The other path I sometimes take with this is turning his concern that he could give it to her in the opposite direction and have it turn out she was diagnosed years ago and his was a recent infection (based on serum antibody results) indicating she may have given it to him. By discussing each of these potential outcomes the nurses become more aware of our own acceptance of double standards and may then be better able to address them with our patients. These conversations encourage our patients to then think through how they might feel, what their initial reaction might be and what outcome they might like to work towards. Doing so helps to avoid the potentially painful and disheartening initial response one might have and helps preserve a positive relationship one wishes to continue.

WHAT HAVE I LEARNED: HETEROSEXUAL BIAS IS RARELY IDENTIFIED

Another health concern that is frequently missed in this scenario is reflects a bias and lack of comfort many of us have with GLBTQ (gay, lesbian, bisexual, transgender and questioning) populations. You will note in the scenario that the gender of the ex is not stated, which leads many of us to run into a heterosexual bias and assume that because the young man is male and his current partner is female that he is heterosexual. This is an assumption which creates quite a bit of harm in health care environments. Health care professionals need to be comfortable asking about sexual orientation and practices in order to provide safe environments for all individuals and appropriate preventative and treatment oriented health care.

I have yet to have a group pick up on the lack of gender identification for the former partner so in one group's scenario I introduce either a phone exchange with the previous partner who is revealed to be male in this scenario or a social media post is discovered in which the previous partner is found to be male. We then discuss in the groups in class the importance of creating environments where patients are comfortable disclosing sexual orientation and behaviors, how to ask appropriate questions in a sexual history, how to recognize a patient may be uncomfortable disclosing a non-heterosexual sexual orientation such as conversations in which the gender of sexual partners is left unidentified. We discuss how individuals who are not open in regards to their sexual orientation are at greater risk for safety concerns when managing a sexually transmitted infection and how that concern can be brought up and discussed without making patients who are not openly sharing their sexual orientation uncomfortable. We also discuss how common fluid sexual orientation is in practice and how this fact should impact both our sexually transmitted infection prevention and treatment efforts. Challenging heterosexual bias is a

critical aspect of providing quality sexual and reproductive health care.

WHAT I HAVE LEARNED: DESPITE BEING FREQUENT USERS OF SOCIAL MEDIA, WE DON'T ANTICIPATE OUR PATIENTS DOING SO

As mentioned above, I always ensure that at least one of the scenarios involves some aspect of social media which students frequently, but not always, fail to consider. Once an STI diagnosis is made and shared with even one person the risk of exposure through social media outlets is significant, particularly among teens and young adults. Some health departments are even using electronic postcards and email to notify suspected contacts. In today's day and age, one might see one's own diagnosis posted by an ex, friend or family member or discover the fact that one has been exposed to a sexually transmitted infection while checking ones Facebook page. The implications of this level of exposure are significant and nurses need to remember to discuss prevention and prepare patients for this likelihood. If the students don't introduce an aspect of social media into at least one of the scenarios, I do, and we discuss the role nurses may have before this happens and after.

WHAT I HAVE LEARNED: STUDENTS OVERESTIMATE COMMUNICATION SKILLS IN THEMSELVES AND IN THEIR PATIENTS

Many of the student scenarios assume that, of course, the patient will tell his girlfriend about his infection and that she will, of course, understand and make an appointment to come in and be tested without

any hesitation. They will be tested, treated and live happily ever after. This assumes a great deal about the communication skills of the provider, the patient and his partner.

We also discuss communication skills within the context of gender norms and students are asked to consider how poor communication skills can contribute to the outcomes created in these scenarios. We cover such issues as self-sabotage (the young man wishes to continue the relationship but doesn't know how to tell the partner so he just stops calling, returning calls, etc. until she breaks up with him), not telling the partner (decides he can't tell her or she will break up with him) and the option to further commit to the relationship without disclosure (propose, get married and by the time she knows she is infected, they will already be together and no one will likely know who gave it to who). Unfortunately, I've seen patients select all of these options in my clinical practice. We use these scenarios to discuss how nurses can impact these choices as well as what legal limitations we have on disclosing a diagnosis to a partner even though we know the patient has not done so and is continuing to expose him/her to a sexually transmitted infection. Nurses working in this field must be aware of and prepare for the stress and conflict that we each have when we know confidential information that cannot be disclosed yet is potentially harmful to another individual.

FUTURE FORWARD:

Anticipating and thinking through these outcomes before they actually occur can be very helpful in determining the best course of action once one is faced with the actual situation in practice. Raising awareness of these "near misses" in this simulated scenario may make these same "near misses" less likely to occur in a real clinical scenario.

I attended an Excellence in Teaching presentation years ago and unfortunately, I cannot remember the name of the speaker. However, I do remember one of his key points which was that in order for learning to occur the learner must first experience an expectation failure where what the learner anticipated happening, did not. As humans our next instinct is to explain away why what we thought should have happened didn't and then at that point we may be open to learning and taking in new information. I have found that to be true in my ten years working with adults in a college environment. We must first challenge our own assumptions, see the problems with those assumptions and then sometimes we are willing to take in new perspectives. I find many working professionals have a particularly hard time seeing our own biases and so I have focused heavily on trying to find and explore those while considering how they impact the care we provide and how alternative perspectives can enrich our functioning professionally and personally.

As a professional and an adult, I am also pleasantly challenged when I read, see or hear a perspective or thought that makes me reconsider my own perspective within a safe and non-judgmental environment. When as a group my students think they have covered the scenario fully and then experience an expectation failure, when they discover there are other issues underlying the situation, I frequently hear the loud whispers and seeing the heads shake when they say "I never thought of that...." This is learning. This is challenging one's own perspective and taking in another. This is critical thinking at its best. This is what I strive to bring to my online and hybrid teaching because it makes us better nurses.

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[2]

Using a Hybrid Instructional Model to Develop Critical Thinking Skills for Candidates in a Course on Becoming a Principal

BY DR. JEFFREY LINN

INTRODUCTION

Hybrid and online courses have become an indispensable teaching tool at the college level. A meta-analysis by the U.S. Department of Education found that students in online courses performed better $< .05$ (.39) than those provided face-to-face instruction if courses were redesigned with specific tasks that enhanced students' learning in that format (Means, et al., 2011). Converting a course from face-to-face to an

online format requires major revision and redesign. This idea of redesigning a course to engage students in critical thinking informed the work described in this chapter.

OPPORTUNITY TO DEVELOP RIGOROUS HYBRID COURSES

In the 2013-14 Academic year faculty members from diverse content areas were funded for a grant. The purpose of the grant was to “investigate design and implement rigorous questions, assignments, and assessments that would lead to critical thinking in asynchronous online or hybrid courses.” The work was based on the following assumptions:

- Technology is not pedagogy. In online learning pedagogical teaching skills and curriculum design are at least as important as technological skills.
- Learning a complex body of knowledge online requires questions, tasks, and assessments that are designed at multiple levels of a learning taxonomy.
- More media does not appear to enhance learning, however asynchronous online communication like discussion boards has been found to lead to more self-reflection and deeper learning.

A group of four professors from Educational Administration, Math Education, Science Education, and Nursing at SUNY Brockport and Empire State College met ten times throughout the year. These meetings lead to the implementation and revision of their respective online or hybrid courses during the spring of 2014. The results of this work also lead to a presentation at a statewide conference in May 2014.

Over the course of the meetings the group:

- Identified the desired results of their work
- Agreed on a group definition of Critical Thinking
- Chose a rubric to measure the construct of Critical Thinking
- Designed and shared assignments and assessments that would lead to critical thinking in their students
- Designed data collection methodology and questions that would measure critical thinking

Prior to the meetings the participants read broadly on the areas of planning for and assessing critical thinking. Meeting minutes from June 2013 reflect topics of discussion that included our understanding of new technologies including Massive Open Online Courses (MOCC's), the role of unions in online and hybrid learning, perceptions of student learning in online courses, rigor and online courses and rubrics to measure critical thinking. The process was important and the meeting minutes provided a window to our thinking. For example, by the December 2013 meeting we worked on generating definitions of critical thinking, methods to elicit thoughtful responses from students, and the differences between critical thinking in face-to-face and online settings. In later meetings we agreed on an operational definition of critical thinking, generated core questions to ask students across content areas and discussed methods of collecting data. Throughout this process, the minutes reflected the power of collaboration and communication between and among four different college teachers. They also served as a resource for writing, research and presentations.

CRITICAL THINKING DEFINED

In our work and meetings we discovered that one view of critical thinking is that it is a self-guided intellectual process of analyzing and conceptualizing problems and issues by closely examining your reasoning, assumptions, evidence, beliefs and biases (Donnelly & Linn, 2014). Paul and Elder (2014) defined critical thinking as the “art of analyzing and evaluating thinking with a view to improve it” (pg. 2). The National Research Council’s committee of the science of learning found that metacognition and critical thinking approaches to instruction help people take control of their own learning by recognizing what they understand and when they need more information. In their view critical thinkers:

- Recognize the strategies they need to assess their own understanding of content or processes
- Realize the importance of building their individual theories about a topic
- Recognize their intellectual strengths and weaknesses (2000)

The process of creating an operational definition of Critical Thinking became an important component of our work. Our committee generated twenty-one descriptive statements such as: “I can take ownership of my learning; I recognize the importance of building individual theories; and critical thinking is a habit of the mind.” Each group member came up with a definition. We edited and discussed our views and challenged each others’ thinking to come up with our group view which read: *The process of critical thinking is a habit of mind involving the consideration of a broad range of information, perspectives and assumptions to examine a complex issue before reaching a conclusion.*

The definition that we agreed upon was not unlike many of the ones that we had come across in our research but the process we used to challenge each other's thinking, gather data, and edit our definition contributed to a level of understanding that we would not have had otherwise.

CRITICAL THINKING AND HYBRID LEARNING FOR PRINCIPAL CANDIDATES

For the portion of the study completed in an Education Leadership program, the course Site Based Management, a course on the Principalship, was converted from a traditional course into an asynchronous hybrid course that reduced face-to-face class meeting times from forty to twenty hours. All the students in the course (n=21) had completed an advanced degree in education and most had been teaching in public or private schools for at least eight years. A few of the class members were counselors, instructional coaches or worked for an outside education agency or charter school.

School Principals must be critical thinkers because of the myriad of decisions related to management, human resources, teaching and learning. Principals are expected to be instructional leaders and the ethical models of the school (Mitgang, 2012; Young et al., 2013). In this role they must provide vision and direction for their schools. In addition, in many districts, principals must lead changes associated with issues like implementing the common core curriculum, evaluating teachers, and developing systems to report and interpret data while continuing to build relationships with teachers, parents, students, and the community. There are no cookbook solutions to becoming a principal: many issues they must address are contextual.

However, effective principals do possess a distinct skill set. A meta-analysis from the Southwest Educational Development Laboratory

found that the six core characteristics needed to be an effective principal are: being visionary, believing that schools are for learning, valuing human resources, communicating and listening effectively, being proactive, and taking risks (SEDL, 2012). My challenge as a teacher was to address the issues and skills associated with becoming a principal. In this role I needed to teach my students to recognize the value in questioning their own assumptions, using relevant information to arrive at decisions, and communicating effectively with others to solve complex problems. I had to teach people to think critically.

The idea of critical thinking is at the center of the common core standards movement and its focus on the cognitive strategies of student inquiry, strategic thinking and interpretation, higher level questioning, accuracy and providing justification and support in answering questions. The standards are written as process skills and require students to deeply examine issues that may have more than one answer depending on the context. But the common core standards are new and the students in our Educational Leadership program, who aspire to lead schools and teachers, have had little experience engaging in the level of critical thinking that they will need to provide leadership in both the implementation of the standards and the more traditional administrative responsibilities. So ironically, to learn the skills embedded in the common core standards, I had to challenge educational administration students to exhibit the same cognitive habits and behaviors that they are asking of schoolchildren: reflect on their own learning, biases, and assumptions on teaching, leadership and management.

Wiggins and McTigue (1998) point out that the key to understanding any content is for the learner to uncover the essential questions and ideas worth knowing about the content. Hence my job as the course designer was to compose questions and assessments, prior to the learning, that would lead the student to think critically about the

content. Assessments can be designed on a continuum that may include traditional research papers, but for students who aspire to be leaders they must also include scenarios, prompts, and tasks that required them to think critically and support their thinking. Students also needed to know what the criteria for critical thinking were. They were provided with the *Critical Thinking VALUE Rubric* (2010) prior to the online assignments. The categories were discussed by the group. This “backward design” was an important part of the course re-design. The intent was to empower the students to assume responsibility for their own learning and address the idea of critical thinking and decision making in their role as educational leaders.

The Critical Thinking VALUE Rubric consists of 5 broad areas. They are:

- Explanation of Issues
- Evidence – Selecting and using information to reach a conclusion
- Influence of Context and Assumptions
- Student’s position (perspective, thesis/hypothesis)
- Conclusions, Implications and Consequences

(The full AACU Critical Thinking VALUE Rubric is available for download at: <http://www.aacu.org/value/rubrics/critical-thinking>)

Students were instructed to self-evaluate their answers against the rubric prior to submitting the assignment. They were then scored by the instructor using it. Students who disagreed with the scores could resubmit their assignments only if they cited the rubric and supported their thinking, based on the rubric.

QUESTIONING FOR CRITICAL THINKING IN A HYBRID COURSE

Good questions are fundamental to guide critical thinking. The key to any learning are the questions you ask of the students: this is particularly true in an online or hybrid course. While some learners will naturally push themselves to think, not all learners are intrinsically motivated. Therefore, it was important in designing critical thinking activities to engage learners by designing questions aligned with the rubric's categories, such as the influence of context and assumptions in their work. In addition, students were challenged to explore their biases and perceptions of how to lead a building.

For this course all students had seven online assignments each consisting of two or three questions. All were graded on a scale of 1 to 4 using the *Critical thinking value rubric* as criteria and a guide. All responses were posted for the whole class to read and students generally had between one and two weeks to respond. Some weeks the students could choose two or three questions from a list of four.

Students were also required to respond to at least three of their peers' entries although many ended up responding to more. As the instructor I could respond to an assignment so that either the group or an individual could see my response. For most assignments, I responded to almost every student.

Three examples of assignments that were designed to lead to critical thinking are provided to illustrate how it was implemented.

EXAMPLE #1 – A MANAGEMENT SCENARIO WITH PRINCIPAL ARTHUR

For their first assignment, students were required to read a number of realistic scenarios involving principals engaged in problem solving issues associated with the school. In this example, Principal Arthur is embroiled in a transportation issue in which he has made some decisions that displeased some of the parties involved and pleased others. (Uebbing & Ford, 2011).

Students were asked to take the perspective of another party in the scenario and state their point of view of the principal, including what questions they have for him and how his choices affected them in this role.

Most students wrote extensive answers. One, reporting as a fifth grade teacher, had a positive response and said that Arthur was, *“not afraid to admit mistakes and make changes. He was a risk taker. Arthur also demonstrated impressive empathy (Fullan, 2011) by listening to his staff, parents, and the bus drivers. They felt validated and Arthur built relationships while conquering the problem.”* Another stated that, *“He remained transparent, honest and determined. Arthur never entertained the idea of blaming others to make himself look better. He taught them, through his action, that problems can be solved with collaboration and communication.”*

Another student selected the role of a parent and in a more negative response, wrote of *“how scared I am when the bus does not show up on time; my fears turned to anger towards him for scaring me. The power of this emotional response would make it hard for me to understand the circumstances and leave me not interested or satisfied in the efforts Arthur made or other problems he was trying to solve.”*...This student went on to say that he would *“question Arthur’s ability to manage and protect my kids”*, citing a number of resources in the area of community norms and the role of management in leadership to support his answer.

REFLECTIONS ON EXAMPLE # 1

My intent in designing this question and others that I asked in the hybrid portion of the course was for students to consider another's perspective when examining complex issues. This assignment aligned with our definition and sections of the rubric on perspective and context. In addition, it was an example of the type of problems I had experienced as a principal. Complaints about management issues like transportation, emergency plans and procedures, and building related issues were a daily occurrence. In the "Principal Arthur" assignment, students were asked to seek first to understand then to be understood (Covey 2004). This is an important skill because educational leaders who do not strive to understand others' perspectives risk failure and loss of credibility.

The students who answered this question at a higher level (level 3 and 4) on the rubric cited from a variety of sources including their reading from past coursework and related their answers to similar school level management experiences they had. They chose a variety of perspectives, which was very encouraging. A few chose the teacher union representative which was closer to their point of view, which did not require much of a shift on their part. The students who scored low on the rubric used phrases like "hands on leader" and "proactive" and provided simplistic, non-critical answers as measured by the perspective portion of the rubric.

To improve this assignment, the task will be redesigned to ask students to consider some of the assumptions that the people in the other roles would have. For example, students could interview a transportation director who is creating a bus schedule or a mother who depends on the bus coming on time so she can make it to work. Students who were not parents or did not have children in school may have had a different perspective than those who have faced issues associated with

transportation. For some students, asking the question is not enough. I needed to scaffold the learning by providing clearer directions, ideas and models to increase the level of critical thinking.

EXAMPLE #2 - A CONTROVERSIAL ISSUE

In this online assignment, students were required to think of a topical or controversial issue in their building, department, or site that they are certain they are correct about and describe it to the class. Then, to illustrate Covey's (2004) idea of synergy, present the opposite point of view to us in as strong an argument as you did the first part of the answer.

One student chose the implementation of the *Common Core Curriculum* in her school, an issue that most students were dealing with this semester. She addressed the curriculum modules being used in New York State and wrote, *"The implementation of the common core has been a disaster. The modules are inaccurate."* Another student addressing the core curriculum issue wrote, *"They leave the teacher wondering about the field testing and nuance of topics...Why would anyone accept the modules as a vehicle for delivering instruction."* Her counter argument offered solutions for working with the common core like, *"collegial sharing with fellow teachers."* And *"helping unpack the common core because they are valuable guides for teachers"*.

Another student, who worked in the Rochester City School District, presented an issue in which a student violently attacked another student after being encouraged to do so by her mother. On one side of the issue the principal was not planning on taking any action because the attack happened on the way home and did not take place on school property. The principal thought that suspending the student would remove her from the educational environment and hurt her preparation for the state assessments. He also thought that the student had been

making significant academic progress prior to her attack on the other student. In taking the other point of view this student noted that *“the incident that led to the attack had happened at school and that many students witnessed the attack.”* And she added that, *“not suspending the student would send the wrong message and possibly undo the progress we have made with these students.”*

REFLECTIONS ON EXAMPLE # 2

My intent for this assignment dealt with multiple perspectives and the influence of context and assumptions in leadership. My students serve in very different school districts; our class consisted of educators from the Rochester City School District and the surrounding suburbs and rural areas up to 100 miles away. Rochester has a minority population of over 85% and a graduation rate of less than 50%. Its' school-children are among the poorest in the country. In the same leadership class were teachers from suburban school districts, who had fewer than 5% of the children who came from poverty and rural districts in which the population was primarily white.

This assignment turned out to be one of the most powerful in the course because it not only forced students to make an argument for both sides of an issue but also exposed them to topics like the suspension scenario and others that challenged their assumptions and biases. This task also uncovered the subtlety and context of issues like low student expectations, the role of standardized assessments, parent communication, discipline, and equity in education.

EXAMPLE #3 – PEER ASSESSMENT ON PRINCIPAL LEADERSHIP ISSUES

In this assignment, students interviewed a principal about a building level issue or concern, researched that issue and combined the results of their interview with their research to write a paper. Students were randomly assigned to an online group consisting of three peers and were required to give feedback and score each of them on the assignment. Twenty percent of the grade was linked to peer feedback.

Some students reviewed the papers and highlighted areas in which they thought their peers had demonstrated critical thinking. Then they wrote a paragraph at the end explaining their grade. Others wrote up to four pages to their peers and cited the rubric. For example one wrote, *“I reviewed the areas of issues, evidence and conclusions and scored you at a 4. Your information was taken from reliable sources and contained enough interpretation to develop a comprehensive analysis.”* And then he cited three examples from the paper to support his grade.

In an another entry the peer reviewer wrote that, *“The writer was able to link the research on best practices to his school setting. This required an understanding of the research. He also showed and cited how his school used a variety of specific strategies to engage parents.”*

REFLECTIONS ON EXAMPLE #3

One of the hardest things to do for any beginning administrator is to give honest, evidence based feedback to teachers and other school workers on their job. In New York, principals must be certified to use rubrics to assess and evaluate teachers. In some districts these evaluations carry 60% of the weight of their teacher’s score. Potential educational leaders must continue to get this type of practice in order to move along the continuum from one who is being assessed to one who assesses.

This was an assignment that placed students into an assessor's role that they will have to assume as a principal. This assignment was difficult for some students. Of the twenty-one students in the class, five chose not to complete the assignment and surrender the points. Some of the entries demonstrated sophisticated thinking as evidenced by their use of the rubric, interspersed with examples from their peers' papers. However, about a third of students scored their peers high on the assessments while providing scant documentation on their reasoning. To improve this assignment, it might be interesting to see how students would score their peers if they did not know who the scorer or assessor was.

STUDENT SURVEY RESULTS ON CRITICAL THINKING

At the conclusion of the course a research assistant surveyed the class using questions that were developed by the four interdisciplinary professors working on the grant. The results were reported anonymously. There were over six pages of student responses collected from the following 4 questions:

- What does critical thinking mean to you?
- What is an example of how to use critical thinking?
- What aspects of critical thinking or confusing to you?
- What else would you like to learn about critical thinking?

STUDENT RESPONSES TO #1 - WHAT DOES CRITICAL THINKING MEAN TO YOU?

Critical thinking to me is analyzing, evaluating, and synthesizing information learned from all of your experiences inside and outside the classroom. It is thinking outside the box.

Critical thinking, to me is about seriously considering all sides of an issue. Critical thinking goes deeper than a simple response that comes quickly. I believe critical thinking evolves as the individual weighs information, feedback, and personal experience. I don't think critical thinking can exactly be void of personal impression and opinion but good critical thinking can also be capable of changing the individual's response and ultimately alter future perceptions of the issue at hand.

To me, critical thinking means being able to analyze a question or a problem in order to synthesize a response that is well crafted. The response should be articulated in a way that is meaningful, thorough, well planned and organized, and supported by research or theory if possible.

Critical thinking is an active, independent approach to thinking in which the individual is engaged in examining and questioning evidence. When intellectual dissent is experienced, topics are explored deeper until enough information is gathered to formulate a concrete opinion or conclusion. A person who thinks critically does not accept information as fact without considering the source of information and the context in which it appears

Critical thinking is the ability to take in information and conceptualize, analyze, evaluate, and synthesize it based on universal values and beliefs with a focus on being clear, accurate, consistent, and relevant.

Critical thinking requires a great deal of reflection and analysis. Bloom's taxonomy is a great example of how a person can achieve a higher level of critical thinking.

I think of the Allegory of the Cave from Plato. The idea of making the distinction between a shadow of something and the object itself. But it is not so simple to enlighten. The blinding light (critical thinking, enlightenment) that removes the darkness is not easy to bear and some may shy away from it.

A willingness to communicate effectively as well as learn and solve problems in a clear and logical manner.

I thought I had a firm understanding of what critical thinking meant after working collaboratively with musicians and artists throughout my career. We are in a constant state of evaluating, exploring, listening, and analyzing the artistic elements of rhythm, tempo, melody, expression, and structure during rehearsals, performances, and in the classroom setting. Our minds are linked to deliberate and purposeful practice through a series of comprehensive strategies that serve to influence the context and relevance of our art. The habits which are developed as a result of thinking ‘critically’ enable us to debate, see another’s point of view, draw conclusions based on evidence, and render a complete explanation of problems and issues that allow for clarification and understanding so that opinions can be formulated. Once I completed Foundations of Education with Dr. Linn, I began to view critical thinking through a different lens. It is true that aesthetic education helps promote global perspective on issues and collaboration with stakeholders. And, yes, one can certainly come to terms with assumptions and context on issues through open, collegial dialogue. But unless we combine thinking with writing, I honestly don’t believe we gain a complete understanding of what it means to explore issues, events, artifacts and ideas through critical thinking. The written word is a powerful tool which enables one to synthesize a myriad of sources and viewpoints. Writing helps foster how we feel and perceive our own emotions and biases on certain subjects. It wasn’t until I examined and researched topics in my Educational Administration program that I became aware of the importance of critical thinking and its connection to the writing process.

STUDENT RESPONSES TO #2 - WHAT IS AN EXAMPLE OF HOW TO USE CRITICAL THINKING?

I use critical thinking skills in my job daily to help my students better. When you think critically you wind up thinking outside the box often. Then you can set a good example and share with others what you have learned.

Critical thinking needs to be utilized when the issue at hand is important, vital. Critical thinking probably doesn't play into when you fall down and scrape your knee and you decide to put on a band aid- that seems more like common sense, however, if a person is in need of a heart transplant I would hope the medical team is involved in critical thinking and considering all the component of a safe and successful surgery.

For coursework in the Ed Admin program, critical thinking was always used when responding to posts online. The questions were posed so that critical thinking was needed in order to respond. Sources of either class texts, research, or theory was applied to responses in order to support the answers being provided. I also used a critical thinking rubric as a guide so I knew whether or not my responses were of high quality or if they could be improved upon.

Critical thinking in the academic setting involves examining the biases of self and others before accepting information as fact. I use critical thinking to prevent myself from jumping to erroneous conclusions based on what evidence I hope to see. Thinking critically can be used to push a researcher to learn more and to consider other perspectives. This process increased learning exponentially. The hybrid model gave more opportunities for critical thinking than any other educational model I have experienced. Researching on my own and then reading and considering the responses of my peers online increased my desire and ability to think critically. This format allowed for the time to gather my thoughts before formulating a response. Meeting the individuals and having a trusted cohort was important.

An example of critical thinking at the elementary level would be to provide students with an example of a mathematical concept/problem completed, but in an incorrect manner. Students would then utilize their understanding of the concept to identify, in writing, what the student did incorrect and why. The student would then create a visual representation for how to explain to the individual the correct way of solving the question correctly.

Recollection of what you've been exposed to and analyzing if you truly understand what it is that you have learned. The application (preferably real world) of what you know or what you've learned. After application, analyzing what you have applied and the process of reconsidering your understanding of the concept or skill through further evaluation. Creating a final (or continual) output based on what you know or what you've learned.

I guess I kind of did with the Allegory of the Cave. In an educational context give the kids something like the allegory of the cave or a great creative writing piece like Someone I Love by Naomi Shahib Nye. Let them dissect meaning on their own then challenge them to write a metaphor or creative piece.

It is a critical component of the decision making process and it should continuously guide our beliefs and actions

Yes. In the fall, the governor will give out tax rebate checks to hundreds of New Yorkers. Is this program a valid one if each check only amounts to perhaps \$20.00 to \$60.00 per household considering it is an election year? I think a case could be made either way, but the perception is that this is a politically motivated initiative. By researching context and exploring the issues surrounding this incentive, I think we could use quite a bit of critical thinking to arrive at variety of conclusions.

STUDENT RESPONSES TO #3 - WHAT ASPECTS OF CRITICAL THINKING ARE CONFUSING?

Sometimes when being asked to think critically it takes a while to analyze, evaluate, and synthesize information. It is challenging.

Any cognitively encompassing terminology can be confusing or unclear because it's so broad. An individual may ponder "am I engaged in critical thinking?" My thought would be that if you are already wondering, then you probably are because critical thinking takes consideration- metacognition- thinking about thinking

The term itself at times can be unclear only because I feel people have their own views as to what critical thinking is and/or what is expected when asked to critically think. For example, the way I look at critical thinking as a graduate student is different from how my high school students look at it.

The extent to which a researcher must state conflicting points of view in a research paper is unclear to me.

An aspect of critical thinking that is a challenge, but not unclear, is having full knowledge of a student so as to best structure a critical thinking activity.

I do not know... I think that I have a clear and concise understanding of the concept.

I think it is the techniques and processes to teach critical thinking that I would like to know more about. How do you create the environment for the mind to behave in that manner? I think as a teacher who tries to get critical thinking I try to challenge them to find the meaning in something like the poem above. But I ask is this the best way or are their primers to get the mind open to critically think?

Why some people don't do it and are willing to let others do this task for them considering it directly and indirectly impacts their own lives.

Yes. I was wondering if utilizing open-ended questioning techniques is a form of critical thinking? I was introduced to this method of teaching while studying aesthetic education at Lincoln Center. The other aspect that sometimes confuses me is that I have to arrive at conclusions based solely on the opinion and viewpoint of the experts. I want to thank my professor for teaching me that I must examine and give voice to my own thoughts and ideas on specific topics and issues once I understand them.

STUDENT RESPONSES TO #4 - WHAT ELSE WOULD YOU LIKE TO LEARN ABOUT CRITICAL THINKING?

There are aspects of my life where I don't use much critical thinking and really should. That is something I should personally work on to grow even further and it will help me with my professional life as well.

Well what I really want to know is how many times it ISN'T used in important issues! That data, however, is as elusive as the term itself. Maybe it is how do others judge or assess whether or not critical thinking is being used. The common answer could be using resources, citing examples, providing a counter opinion but can it takes place without the obvious trademarks and if so, when is it critical think or when is it just a line of bullshit?

Are there ways to make yourself a better critical thinker in addition to continuous practice with reading and writing? I mean, are there any strategies that you can use to train your brain in a sense to look at things and be more analytical and reflective?

I would like to learn how to teach a variety of strategies to engage others in critical thinking. Specific skills, activities, projects or games that would assist others in building their critical thinking skills.

How to assess critical thinking. What materials, training etc... Exist to teach or encourage critical thinking.

How to encourage others to engage in the task, use initiative and build their own capital. I would like to learn about strategies, best practices and curriculum that foster critical thinking in our young people the result in informed and active citizenship.

How does one use the components of critical thinking for debate? I would like to learn more about that. I am not a “yes” person, and tend to look at issues from a very broad perspective so I can take into consideration a variety of viewpoints, including my own. As I write this, I am beginning to understand that I have more work to do in the area of whether I need to worry about individuals being upset with me because I may think differently about an issue. If the intent is noble, and the focus is on doing the right thing, then both sides win because we seek “first to understand”, but “stay the course by being resolute.”

CONCLUSIONS

I believe that we can teach many students to think critically if we guide their work and begin with the end in mind. I tried to do this when I introduced the Critical Thinking Rubric so students knew how they would be evaluated. Teaching in a hybrid or online environment was time consuming and challenging. As a teacher I had to constantly circle back to the rubric to give my students feedback. I thought this process was similar to my work as a principal when observing a teacher in classroom. In those instances, as in this course, I found that

the most powerful phrase I could use was, "...as indicated by...". An example of this follows. "You failed to support your argument for getting rid of the common core curriculum as indicated by your use of a single anecdote rather than citing multiple perspectives or other research." When multiplied by twenty-one students, this type of feedback can be onerous. But the pay-off was worth it.

The data collected in the four questions at the conclusion of the course supported my belief that many students learned to think more critically.

One aspect I looked at was the language/verbs students used to describe critical thinking. Most of the student responses used powerful verbs associated with critical thinking to describe their understanding of the concept. The word that was used most often in the responses was *analyze*, which is defined as distinguishing between fact and inference and recognizing unstated assumptions. This is critical thinking and it showed up in most descriptions. Other students used words like synthesis and evaluation to describe critical thinking. And still others noted that a critical thinker considered multiple sources, context and evidence, elements included in the rubric.

A number of student comments stood out for me. One statement was, *"I am beginning to understand that I have more work to do in the area of whether I need to worry about individuals being upset with me because I am thinking differently."* This statement captures the metacognitive aspect of critical thinking that is so important to leadership. Principals will have to build relationships with people who do not always agree with them. A student who recognizes this has made progress as a thinker.

In response to the question, "What else would you like to learn about critical thinking?" One student wrote, *"I would like to learn how to teach a variety of strategies to engage others in critical thinking... and specific skills, activities, projects or games that would assist others in building their critical thinking skills."* And another asked, *"How to assess critical thinking?"* Perhaps they want to learn more on the topic, like what methods

to use with different grade levels. When I fine tune the course I must plan for more overt scaffolding and explanations of how the tasks they are completing are leading to critical thinking, in themselves and their own students.

There is another important point worth making. On my course evaluation forms all twenty-one students indicated that they were in favor of more hybrid learning experiences. Many said that they loved the course, and that it engaged them in “*deeper thinking and reflection than if we had discussed the same questions in class*”. Others admitted that they worked harder in this course than in most face-to-face courses.

Finally, a student wrote that critical thinking could be used to, “*prevent myself from jumping to erroneous conclusions based on what evidence I hope to see.*” This is a challenge that principals face every day and captures the level of thinking that I hoped my students would attain.

This thoughtful response will challenge me to continue my work.

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[3]

Enhancing Critical Thinking Skills through Activities that Allow for Self-Reflection

BY DR. FRANK McDONALD

INTRODUCTION

When teaching in any environment, regardless of the mode of delivery, there are certain areas that instructors must consider in order to ensure that the learning environment promotes student engagement, and that the learning in that environment is maximized. First, attention must be given to content knowledge of the particular area. Secondly, Shulman (1986) argues that the activities within a course must be designed to meet the needs of all students. Moreover, the activities within the learning environment should be designed to require students to think critically and creatively. When teaching in an online environment, there is an additional element that should be considered: technology must be used to effectively support the learning environment. Because of the need to have a solid understanding of the role of

technology, technological pedagogical content knowledge (TPCK) is critical. My research is focused on understanding how to build online learning environments that reflect the details outlined in the three aforementioned areas. This chapter will focus on strategies for creating learning activities in a science education class that require students to think critically.

The National Research Council argues that learning can be best described as the extent to which a person is able to successfully transfer learning from one context into another; when they are able to do so successfully, we can say that learning has occurred (Schweingruber, 2007). According to Michael (2006), this transfer can either enhance learning within the new context, or it can hinder learning, so ensuring that students have a deep conceptual understanding is critical. This idea should serve as the cornerstone of any educational experience, and it is especially important when developing activities in courses that are designed for pre-service teachers, because they will have the responsibility of transferring their learning into classrooms.

In this chapter, we seek to explore some of the outcomes, considerations, and future research questions that relate to developing critical thinking activities for pre-service teachers enrolled in a course with an online and a face-to-face component. Much of the work in this chapter is the result of a grant that allowed four professors to explore the types of activities that could be developed to enhance students' ability to think critically in a mixed-mode course. The core team of the grant consisted of four faculty members from the State University of New York Empire State College (SUNY-ESC) and SUNY-Brockport, each of whom represented a different discipline. These disciplines include Math Education, Science Education, Nursing, and Educational Administration. Because the question of what types of activities enhance students' ability to think critically was explored across each of these disciplines, it was important for the team to develop an operational, cross-disciplinary definition. To begin our discussion, we spent a great deal of time reviewing a critical thinking rubric (AACU). In the end, we agreed on the following definition:

The process of critical thinking is a habit of mind involving the consideration of a broad range of information, perspectives, and assumptions to examine a complex issue before reaching a conclusion.

After we felt comfortable that this definition could be generalized to each of our disciplines, we began exploring the types of critical thinking activities that could be developed within our course. This chapter will focus on a hybrid course designed for science educators seeking certification to teach secondary science in New York State (NYS). The critical thinking definition has been separated into three parts (shown in fig.1) and extended to coincide with the language used in this certification course.

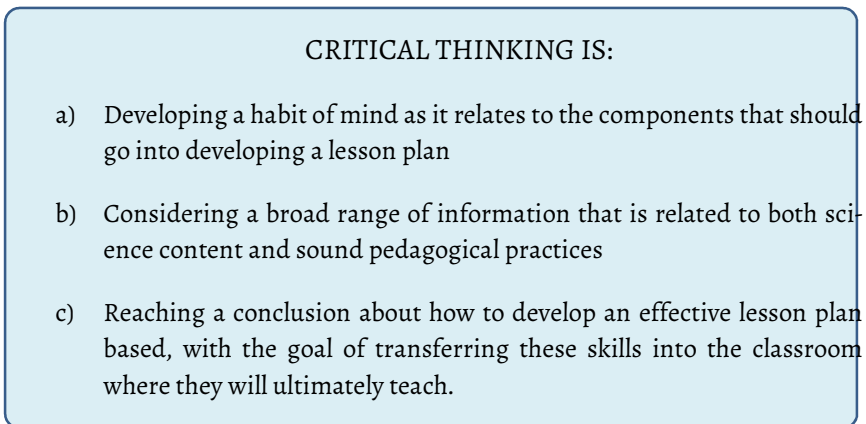


Figure 1. Critical Thinking definition. Critical Thinking as defined by 4 professors who represent four different content areas.

Since the students enrolled in this course are seeking certification to teach secondary science in NYS, many of the activities within this course are guided to a great degree by the New York State certification requirements. Here, we have chosen to focus on one of the major requirements known as the Teacher Performance Assessment (edTPA). This certification requirement was chosen because it has requirements that are broad enough to address many of the core assignments within this course. The edTPA is a

culminating assessment that is designed to determine the extent to which a pre-service teacher is prepared to successfully enter classrooms as a teacher of record. It consists of three major components known as Tasks.

The scope of each task is identified below:

TASK 1:

Planning for Instruction and Assessment, you will describe your plans for the learning segment and explain how your instruction is appropriate for the students and the content you are teaching:

- What do your students know, what can they do, and what are they learning to do?
- What do you want your students to learn? What are the important understandings and core concepts you want students to develop within the learning segment?
- What instructional strategies, learning tasks, and assessments will you design to support student learning and language use?
- How is the teaching you propose informed by your knowledge of students?

Task 1 prepares you to demonstrate and analyze the effectiveness of your teaching of the planned learning segment.

Figure 2 continues >

Figure 2 continued

TASK 2:

Instructing and Engaging Students in Learning, you will demonstrate how you support and engage students in learning:

- What kind of learning environment do you want to develop in order to establish respect and rapport, and to support students' engagement in learning?
- What kinds of learning tasks actively engage students in the central focus of the learning segment?
- How will you thoughtfully elicit and build on student responses in ways to develop and deepen content understanding?
- In what ways will you connect new content to your students' prior academic learning and personal, cultural, or community assets during your instruction?
- How will you use evidence from your instruction to examine and change your teaching practices to more effectively meet a variety of student learning needs?

TASK 3:

Assessing Student Learning, you will analyze student learning and their language use:

- How will you gather evidence and make sense of what students have learned?
- How will you provide meaningful feedback to your students?
- How will you use evidence of what students know and are able to do to plan next steps in instruction?
- How will you identify evidence and explain students' use of language that demonstrates the development of content understanding?

Figure 2. edTPA Tasks. These are the 3 Tasks, and their respective guiding questions for students who are preparing their edTPA for secondary science (SCALE 2014)

These three Tasks require each candidate to think broadly about the activities and assessment strategies that they will use in their classroom. In order to engage the students in this course with the Tasks identified in fig. 2, the lesson plan template (LPT) in fig. 3 was used. The LPT not only served as a means to explore the tasks in fig. 2, but also provided an opportunity to explore the components of the critical thinking process outlined in fig. 1. It is important to note that edTPA requires each teacher candidate to submit a different item for each Task, i.e. Task 1 requires the submission of a unit plan consisting of 3–5 lesson plans, Task 2 requires a video submission showing how the lesson was implemented, and Task 3 requires an assessment plan submission. In this course, we will focus primarily on Task 1 because the development of a lesson plan will address many of the broader concepts outlined in Task 2 and Task 3. Also, since the teacher candidates in this course are novices and the majority are career changers, the LPT will also provide a systematic way to introduce them to effective lesson plan development strategies.

The critical thinking process is outlined in fig. 1. Here, we wish to explore each part of the process and how the activities in the course supported the components of the process.

DEVELOPING A HABIT OF MIND

In order for a learner to master a set of skills, they must be systematically and meaningfully engaged in activities that support the development of those skills. By repeatedly engaging in such activities, the learner integrates those skills into his or her intellectual tool box. This is very important because the learner is frequently required to apply these skills in a different setting. In the case of the pre-service teachers enrolled in this course, they will ultimately be required to transfer these skills into the classroom. If the learner has developed these skills in a systematic way, the transfer process is more likely to be seamless. The LPT that was used in this course outlines the

major process skills that teachers are required to understand in order to develop an effective lesson plan. It served as the major tool in the course to consistently reinforce these process skills and to support the critical thinking process. A major advantage in using this lesson plan template is that it allows the students to focus more broadly on some of the major process skills rather than being burdened with the mechanics of creating a lesson plan during their initial learning stages. After the learner has become more familiar with the LPT, they will be able to create their own unique lesson plan in a way that is most meaningful to them. The LPT also allows the candidate to focus more closely on developing their thinking in a way that

- a. Reflects their understanding of some of the major strategies that support an effective learning environment
- b. Provides a systematic way to engage the candidate with tools and activities that support the critical thinking process.

The lesson plan template that was used in this course consists of 5 major categories (shown in fig. 3), and the broader questions addressed by each category are outlined in figs. 4–9.

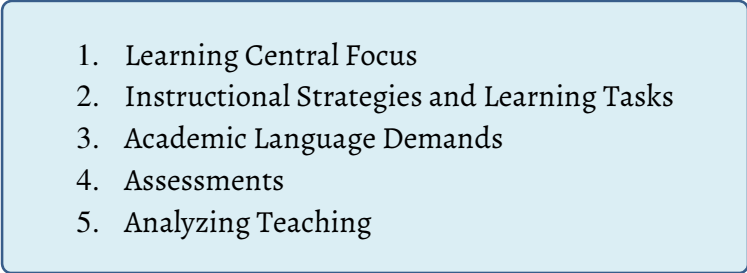
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1. Learning Central Focus
 2. Instructional Strategies and Learning Tasks
 3. Academic Language Demands
 4. Assessments
 5. Analyzing Teaching

Figure 3. Sample Lesson Plan Template- 5 major categories. This formative assessment plan shows the 5 categories that students' focused on during their science education course (Layzell, 2012)

LPT - LEARNING CENTRAL FOCUS

Central Focus

- What is the central focus for the content in the learning segment?

Content Standard

- What standard(s) are most relevant to the learning goals?

Student Learning Goal(s)/ Objective(s)

- Skills/procedures
What are the specific learning goal(s) for student in this lesson?
- Concepts and reasoning/problem solving/thinking/strategies
What are the specific learning goal(s) for students in this lesson?

Prior Academic Knowledge and Conceptions

- What knowledge, skills, and concepts must students already know to be successful with this lesson?
- What prior knowledge and/or gaps in knowledge do *these* students have that are necessary to support the learning of the skills and concepts for this lesson?

Common Errors, Developmental Approximations, Misconceptions, Partial Understandings, or Misunderstandings

- What are common errors or misunderstandings of students related to the central focus of this lesson?
- How will you address them for *this group* of students?

Figure 4. Sample Lesson Plan Template (LPT)- Learning Central Focus. These questions are designed to guide students' through the Learning Central Focus category of the LPT (Layzell, 2012)

The main goal of the Learning Central Focus is to help the teacher think broadly about the entire framework for the lesson plan. Of particular note is one of the questions that focuses on helping the teacher think through any content specific misconceptions students may have. It is especially important for teachers to identify any misconceptions that are traditionally associated with a specific topic. Studies indicate that even if misconceptions are addressed within a particular context, unless they are thoroughly addressed, they are more likely to reappear at a later time in a different context (Heller and Reif, 1984). Therefore, it is very important to adequately address misconceptions. Additionally, addressing these misconceptions provides the teacher with an opportunity to think about the lesson through multiple perspectives.

LPT - INSTRUCTIONAL STRATEGIES AND LEARNING TASKS

Launch - _____ Minutes

- How will you start the lesson to engage and motivate students in learning?

Instruction - _____ Minutes

- What will you do to engage students in developing understanding of the lesson objective(s)?
- How will you link the new content (skills and concepts) to students' prior academic learning and their personal/cultural and community assets?
- What will you say and do? What questions will you ask?
- How will you engage students to help them understand the concepts?

Figure 5 continues >

Figure 5 continued

- What will students do?
- How will you determine if students are meeting the intended learning objectives?

Structured Practice and Application - _____ Minutes

- How will you give students the opportunity to practice so you can provide feedback?
- How will students apply what they have learned?
- How will you determine if students are meeting the intended learning objectives?

Closure - _____ Minutes

- How will you end the lesson?

Figure 5. Sample Lesson Plan Template (LPT)- Instructional Strategies and Learning Tasks. These questions are designed to guide students' through the Instructional Strategies and Learning Tasks categories of the LPT (Layzell, 2012)

The Instructional Strategies category provides an opportunity for the teacher to articulate how they intend to provide support for all students in their class. It also requires them to be specific about how they plan to differentiate the activities for the class. One of the major challenges that many new teachers face is making adjustments when the lesson does not go as planned, so it's important that they address this in the development of their lesson plan. The "Theoretical Principles and/or Research-Based Best Practices" section is also important because new teachers are often unfamiliar

with the educational literature. This category ensures that they are broadening their understanding of the content and effective teaching strategies

LPT - INSTRUCTIONAL STRATEGIES AND LEARNING TASKS

Differentiation/ Planned Support

- How will you provide students access to learning based on individual and group needs?
- How will you support students with gaps in the prior knowledge that is necessary to be successful in this lesson?

Student Interactions

- How will you structure opportunities for students to work with partners or in groups? What criteria will you use when forming groups?

What Ifs

- What might not go as planned and how can you be ready to make adjustment?

Theoretical Principles and/or Research-Based Best Practices

- Why are the learning tasks for this lesson appropriate for your students?

Materials

- What materials does the teacher need for this lesson?
- What materials do the students need for this lesson?

based on best practices grounded in the literature.

Figure 6. Sample lesson Plan Template (LPT)- Instructional Strategies and Learning Tasks. These questions are designed to guide students' through the Instructional Strategies and Learning Tasks categories of the LPT (Layzell, 2012)

Academic language demands have become an increasingly important topic to address, especially with pre-service teachers. In particular, new science teachers often focus only on the science content without ensuring that the language demands of the lesson are addressed with the students. The questions in fig. 7 were used to help guide pre-service teachers' thinking with respect to the importance of language demands. In particular, they are asked to be specific about the role of language within the activities they will provide for their students.

LPT – ACADEMIC LANGUAGE DEMANDS

- What language function do you want students to develop in this lesson? What must students understand in order to be intellectually engaged in the lesson?
- What content specific terms (vocabulary) do students need to support learning of the learning objective for this lesson
- What specific way(s) will students need to use language (reading, writing, listening and/or speaking) to participate in learning tasks and demonstrate their learning for this lesson?
- What are your students' abilities with regard to the oral and written language associated with this lesson?
- How will you support students so they can understand and use the language associated with the language function and other demands in meeting the learning objectives of the lesson?

Figure 7. Sample Lesson Plan Template (LPT)- Academic Language Demands. These questions are designed to guide students' through the Academic Language Demands categories of the LPT (Layzell, 2012)

The assessment category requires the teachers to address both formal and informal learning assessments. The key here is that the teacher is required to specifically address how each of the assessments relates back to the learning objective and central focus. This section ensures that the assessments are not disconnected from the main learning objective.

LPT – ASSESSMENTS/ ANALYZING TEACHING

- What worked?
- What didn't?
- For whom?
- Adjustments:
 - What instructional changes do you need to make as you prepare for the lesson tomorrow?
- Proposed Changes.
 - If you could teach this lesson again to this group of students what changes would you make to your instruction?
 - Whole class:
 - Groups of students:
 - Individual students:
- Justification
 - Why will these changes improve student learning?
 - What research/ theory supports these changes?

Figure 8. Sample Lesson Plan Template (LPT)- Assessments/ Analyzing Teaching. These questions are designed to guide students' through the Assessments/ Analyzing Teaching categories of the LPT (Layzell, 2012)

This category requires the teacher to reflect on the overall success of their lesson and in particular to identify what changes they would make if they had to reteach the lesson. They are required to address not only the changes that they will make for the class but also any changes that they will make to support individual students. Most importantly, the LPT requires that these changes be supported by the literature. Although the five categories outlined in the LPT each have their own unique body of associated questions, repeatedly addressing these questions builds a habit of mind, and these questions will guide teachers as they develop an effective learning environment.

CONSIDERING A BROAD RANGE OF KNOWLEDGE

The second phase of the critical thinking process focuses on ensuring that students are engaged with activities that require them to consider a broad range of knowledge. Due to the broad range of information that the students had to consider, it was important to encourage them to rely on their classmates as a resource during this process.

In order to expose students to a broad range of information while taking into account that the course was mostly online, they were guided through the process in four stages:

1. Interacting with wikis
2. edTPA presentation development/ feedback
3. Lesson plan development with instructor and peer feedback
4. Inquiry and Reflection

INTERACTING WITH WIKIS

Since this course is mostly online, it was important to provide students with an opportunity to engage with the communication tools. The course was designed on the Moodle Learning Management System platform, which provided a number of tools that could be used to facilitate communication and

discussions between the students. In this course, the wiki was used as the main communication tool. The wiki was chosen because it provided a more linear conversation than the traditional discussion posts. To begin their interaction, the students were provided with a wiki user guide to ensure that every student had the same basic knowledge about wiki use.

Within the first week of the course, students were asked to introduce themselves to the class by posting a response to a question prompt. The questions were ice breakers in which they were asked to give their name, their content area, and anything else they wanted to share with their peers. They were also asked to post any questions or concerns they had concerning the use of the wiki within the course. This activity was also designed to create a sense of community within the class, which was important because the course was mostly online and consisted of students living all over NYS. It was also important because not all students were comfortable with the technology; when students were provided with the guiding questions and a space to post their challenges, some of their classmates provided guidance, and they ultimately became more comfortable and posted more regularly.

EDTPA PRESENTATION DEVELOPMENT

After the students were provided with an opportunity to practice using the wikis, they were placed into groups. By this point, the students seemed much more comfortable with the wikis, so we began to focus on the edTPA requirements. Each student was provided with an edTPA science handbook; every content area has its own handbook. Due to the considerable amount of information within each handbook, it was important to give them an activity that allowed them to focus on the details of the handbook with the help of their peers. For this assignment, each student was required to work with their group members to create a presentation reflecting their understanding of the edTPA requirements. The overall goal of the activity was to have them

read through each of the sections of the handbook and then have a more focused discussion with their group members as they created the presentation. In all groups, they each assigned one another a task that would ultimately produce one part of the presentation. The groups relied mainly on the wikis to communicate their questions and ideas to one another, and they also used Google Docs to build their presentation.

After each student completed and uploaded their presentation, they received feedback from the instructor and their classmates from a different group and used that feedback to make any necessary changes.

LESSON PLAN DEVELOPMENT

As you can see in figures 4–8, the LPT is a fairly detailed document. To practice using the LPT, students were provided with a lesson plan and asked to create their own individual lesson. Students were asked to work independently on this assignment. Because the lesson plan is such a key piece of the learning and development process for a beginning teacher, and because it contains questions that are significant to creating an effective lesson, it was important for each of them to experience interacting with the LPT as much as possible. It was also important for them to work individually so that the number of sample lesson plans would be maximized for the course. This was important since it provided more examples for the class to consider during their discussions. A major advantage in using the LPT was that it gave the students a way to organize their thoughts and address many of the questions that they would not otherwise have thought about.

After each student completed their lesson plan, they were asked to upload their lesson to a drop box in the course, where the instructor provided feedback to each student, and each student made the necessary revisions.

INQUIRY AND REFLECTION

Many of the students submitted lesson plans that were heavily teacher focused, rather than creating a student-centered classroom. To help them think more broadly about some of the differences between a student-centered classroom and a teacher-centered classroom, they were introduced to four different models of a philosophy known as Inquiry Based Learning. These models were Demonstrated Inquiry, Structured Inquiry, Guided Inquiry, and Self-Directed Inquiry. After reading about the four different models of inquiry, each student was asked to go back, review the lesson plan they submitted, and describe which of the four inquiry models best described their lesson plan. Some of their lesson plans were somewhat aligned to one of the models, and others were not. One of the major goals of this activity was to provide students with an opportunity to view their lesson plans critically through the lens of one of the inquiry models. This is important because some students may view the lesson plan template as somewhat of a panacea, but they should instead view the lesson plan template as simply a template, and they should constantly be thinking broadly about their lessons and activities situated within one of the inquiry models. Finally, after they identified which inquiry model best described the lesson plan they originally submitted, they were asked to modify their lesson plan so that it was as closely aligned as possible with one of the inquiry models.

DRAWING CONCLUSIONS

The final step in the critical thinking process requires the learner to consider all of the information from each of the content specific bodies of knowledge, consolidate the information in a way that is consistent with the needs of the learning environment, and articulate those ideas in their lesson plan. The final decision of what to include in the lesson plan is critical. This decision making process can be thought of as existing in two different levels. The first level can be considered the micro-level. Here, the learner is constantly making decisions about how to address the requirements and questions posed

by each of the content specific bodies of knowledge, hereafter referred to as standard body of discipline based knowledge (SBDBK). The SBDBK outlines all of the necessary pedagogical considerations, questions that must be considered when teaching in a given discipline, and the effective teaching strategies that have been accepted by the broader community. Here, the SBDBK includes the edTPA guidelines, the lesson plan template, and the inquiry based teaching models. For special cases, it could also include suggestions from professionals within the field whose ideas are consistent with some variation of the models presented in the literature. It is important to note that decisions at the micro-level may be made in isolation from the other; that is, the decision of how to address the edTPA guidelines may be made without necessarily considering which inquiry model best supports those decisions. The link between the edTPA and the inquiry model should be addressed at the macro-level. At the macro-level, the learner must intentionally consider the intricate relationships that exist between all of the SBDBK and make broad decisions about the lesson plan that take all of these perspectives into account. Additionally, the student will ultimately be required to frame the lesson plan within the context of an actual class. Therefore, the critical thinking activities in this course have been designed to ensure that students will obtain a broad understanding of effective pedagogical strategies that are grounded in the literature so that they will be more likely to successfully transfer their knowledge into their classrooms.

IN THE FUTURE:

- In response to student feedback, there are a few modifications and enhancements that can be made to improve the course. For example, not all of the students felt comfortable with the wikis. Because this was a main communication tool used within the course, the course developer will explore additional strategies to ensure that the use of the wiki is

maximized and that it does not impede the learning or communication process.

- The lesson plan template was used as the major learning tool within the course. Due to the depth of the lesson plan, the students felt it would have been better to introduce each category separately as opposed to introducing all categories at once. Another strategy involving the lesson plan could be to encourage students to find a local school in their neighborhood and work with an actual class on some level to help them practice making macro-level decisions.
- The edTPA handbook can be overwhelming for some students, so, like the lesson plan template, presenting the tasks separately may be helpful for some students. Because they were required to develop an edTPA presentation, it may also be helpful to provide students with guidance on deciding “who will do what” for the presentation. This may also be helpful because the presentation was created with groups working online.
- One of their major assignments required students to align their lesson plans with one of the major models of inquiry introduced in the course. In the future, this assignment will be extended to include the other models as well. For example, if a student determines that their lesson plan was described best by inquiry model #1, they may be asked to modify their lesson plan so that it is aligned with model #2 or #3, and then discuss in writing whether model #1 is the best for that particular lesson.

Finally, one of the major requirements of the edTPA is that students articulate how they met the requirements of each edTPA task. In the future, the course should include more opportunities with more targeted writing assignments for the students to capture their specific thoughts about their

assignments and their growth as critical thinkers.

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Undergraduate Education Students Exploring Digital Image Technology through a Blended Learning Exploration

BY DR. KIMBERLY ROFF

INTRODUCTION

Collaborative learning and critical have always been a goal of higher education. Learning and thinking have been achieved in higher education through face-to-face learning, blended learning, and online modes. Out of the three learning environments mentioned, some studies of blended learning environments have found to be more effective than classroom-based teaching alone (Garrison, 2008). As predicted by Allen, et al. (2007), in recent years blended learning environments have seen an increase. Garrison (2008) found that higher education has seen a rise in this type of programming. In 2006-

07, there were over 12 million students in higher education that were enrolled in distance education programs (NCES, 2008). In higher education there are approximately 80 percent of institutions which offer blended learning courses (Garrison, 2008).

Blended learning allows a face-to-face experience as well as an online experience. The premise surrounding blended learning is that there is a replacement of certain aspects of face-to-face learning with appropriate online learning experiences such labs, simulations, tutorials, and assessment (Garrison, 2008). Blended learning environments have been described by several researchers as being approximately 50 percent more or less dedicated to online delivery (Allen et al., 2007 & Garrison, 2008). The main question to analyze is, “How in a blended learning environment do students in face-to-face as well as online environments begin to think critically on an educational technology assignment involving collaborative activities?”

The idea of continuing to explore the benefits of blended learning was why this study was conducted. The continued benefit to students in this learning environment is why this area of research was conducted. In both the face-to-face as well as the online component of these blended learning environment, there are benefits to student learning. Students are able to engage in an environment that is non-threatening through the online component and then feel comfortable and safe once they meet face-to-face. By allowing the two modes of instruction to intersect, critical thinking, collaboration, independent growth all become pivotal components of learning. The digital images project was created to allow students to integrate images and create lesson plans using educational technology. This project allowed students to explore their ideas through group collaboration as well as individual assessment. It also allowed students to experience their learning and growth through face-to-face interaction as well as online.

THE BENEFITS OF BLENDED LEARNING

There are benefits to all facets of learning whether it is online or face-to-face. Barkley (2006) suggested that the use of blended learning allows students to guide their own learning through various formats. It is important for the learning and discovery to happen within the learning environment. The benefits of this blended environment allow students and faculty to submerge in the learning process and benefit from each other collectively.

Alotaibi (2013) discussed that the blended learning environment provides students with a user-friendlier atmosphere. Students were found to be confident and learn more. It allows students to learn effectively through different means. He also described a study conducted at the University of Tennessee; in which the researchers found that students performed better and had higher achievement results in the blended environment rather than the traditional teaching environment.

In blended learning, often discussion forums are used. These discussion forums allow for the initial analysis of the material to take place. It allows for all types of students to voice their opinions and ideas in an uninterrupted forum. Rovai and Jordan (2004) found that in blended courses there is a stronger sense of community than in either traditional or online courses. Conrad (2005) found the same result. In addition Conrad found that when the learners were able to meet face-to-face, they felt connected to each other.

THE RELATIONSHIP BETWEEN CRITICAL THINKING AND BLENDED LEARNING

The research surrounding critical thinking as it relates to blended learning is scarce. As defined by the Association of American Colleges and Universities, “Critical thinking is a habit of mind characterized by

the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.” (Rhodes, 2010, p. 3). In terms of asynchronous discussion forums, Angeli et al. (2003) found that online discussion groups did not affect students’ critical thinking. Furthermore, Alotaibi (2013) found in a study of 58 students at Teacher’s College, King Saud University that critical thinking skills were unaffected by discussion groups using the Watson-Glasser Critical Thinking Test. Akyuz and Samsa (2009) found that the 44 students in their study experienced critical thinking through interpretation, in the blended learning environment, however instances of inference weren’t experienced. The authors felt that in order to remedy this, discussions both synchronous and asynchronous over a longer period of time needed to be implemented. In another study by Burgess (2009), critical thinking was also analyzed through discussion groups and there was improvement of critical thinking skills shown. In addition, Burgess found that the students became more self-dependent thinkers.

COLLABORATIVE ACTIVITIES AND BLENDED LEARNING

Collaborative learning is not a new idea. Many educators have used this technique in their classes to integrate learning with activity. The primary focus of this interactive activity is the student. Vesisenaho (2010) found that students are able to discover new conclusions and knowledge when they collaborate, rather than just relying on the teacher to present information when students play an active role in the course through collaborative learning, it provides opportunities for them to explore ideas and concepts through conversations (Vesisenaho, 2010). Bruffee (1998) suggested that these collaborative groups allow for the development of a higher level of thinking and that

participation in such groups provides preparation for real life social and employment situations.

DESCRIPTION OF PARTICIPANTS AND CREATION OF BLENDED LEARNING ACTIVITY

This study was conducted at the undergraduate level in the area of Educational Studies. The title of the course was Utilizing Technology in the Classroom. The students involved in this course varied from waiters to secretaries to paraprofessionals to teacher candidates. Many had been exposed to a variety of coursework and their level of study varied from no coursework to 30 credits in Educational Studies. The average age of the students was 28 years. The course was designed as a blended study, where students met face-to-face one week and then online the following week. The course incorporated asynchronous discussion forums, online activities, assessments, projects, response papers, collaborative activities, and research papers. To measure collaborative learning and critical thinking in this environment, a multiple week lesson was created. The steps of the lesson were divided into sections with face-to-face activities and online activities listed for each.

OVERVIEW OF ASSIGNMENT

This assignment was a project on learning how to use digital images and integrate this technology into the classroom environment the student was in or to integrate the technology into a pretend environment that would like to be in. The students created an instructional activity through the use of digital images by incorporating them into either Voicethread™, Animoto™, visual narrative using Moviemaker™, or Flickr™. Students created 10 images that focused on an instructional

activity or curricular topic. They outlined the project activity and worked with collaborative groups to discuss information. Students then drafted the project and were critiqued by group members. The critique provided students with ideas for revision and students revised these projects and submitted a final digital images project. The final project consisted of 10 slides with personal narration to correspond with the images. Students also signed up for the free accounts depending on which website they integrated their digital images into.

PREPARATORY ASSIGNMENTS

In order to prepare for the multiple week project, each student posted, in the online discussion area, a personal picture that they had taken with a description of the picture and the event that the picture displayed. This was a homework assignment given in order to set the stage for our discussion of the project. In addition to posting the picture, students answered the following question on the discussion board, “How do you display your personal photos? Describe all the ways in which you display your personal photos”. This started a conversation about some ways that digital images are displayed and what services or software students used to display their digital images.

THE PROJECT

When the class met face-to-face, the discussion continued on digital imaging. I brought up the ideas that were discussed online and discussed them more formally so that everyone was presented with the same material and background as we approached the project. From past experiences of working with students online, I found that at times students only looked at their post and did not read all the posts in the

entire discussion board. By reviewing all the concepts and ideas, students are able to see the interesting and innovative ideas that others had discovered.

An introduction to the digital imaging project was explained. Students were asked to start thinking about the project by brainstorming possible project ideas. The instructor gave the students 20 minutes to initially brainstorm about this task. After the 20 minutes were completed, the class started to discuss as a group what topics and ideas they had. The expression of ideas allowed the students having difficulty to begin to see where their project would go.

Next an outline was distributed to the students (below).

DIGITAL IMAGES INSTRUCTIONAL ACTIVITY OUTLINE

- First Name Last Name
- Identification of the Class
 - a) Subject
 - b) Grade
- What are the New York State Standards that apply to your instructional activity?
- Describe the instructional activity in 3-4 sentences. Please include the type of digital images project that you chose in your activity. You are more than welcome to include a lengthier description.
- How would you assess student learning? You are not required to create an assessment measure, but I need you to think about it. Three to 4 sentences is sufficient for this question.

In the outline, each student was asked to describe what the activity was in approximately four sentences. Each student then described on the outline what type of assessment would be used to assess student learning. In order for an initial draft of the outline to be accomplished, 30 minutes was allotted. This provided an opportunity for students to develop a concrete idea of what their project would look like. The students worked on this outline for several minutes individually. The students brainstormed about a class and subject area that they would be using this digital images project in. Students described the New York State Standard that applied to their instructional activity.

Students were then put into collaborative groups of three. The collaborative groups were formed based on similar interests, audiences for the project, or similar areas of education. The four established groups were secondary education, elementary education k-3, no education component, and elementary education 4-6. In the collaborative groups, four different sources of digital imaging were analyzed. These websites are [™]Animoto, Voicethread [™], visual narrative using Movie-maker [™], or Flickr [™]. Students examined the components of each website. Students took notes so that they would be able to assess which type of digital imaging they would use to complete the project. When using Animoto [™] or Flickr [™], the addition of voice was not available; due to this many students took it immediately off their list of choices. The collaborative groups did not only select one website to work with, websites varied depending on the project and what the student wanted to accomplish with the project.

After viewing the possible websites, students resumed exploration and discussion in their peer groups. Each student allowed the members in their group to view their outline. The groups then discussed what each student's project was about. These peer groups allowed students to develop their outline in more depth in order to begin to think critically about the material and how they might design their project.

Gaining feedback from peers was beneficial to helping them complete the outline and provided a solid base for their project.

Students were given the following week online to work on their project. Students were allowed to contact and communicate with fellow group members as well as the instructor during the week for continuous support and guidance through the discussion boards. Separate folders were created for each group to hold discussions. These discussion areas allowed students to ask additional questions of each other as well as just run an idea by a group member.

For completion of a draft of the project to be successful, students needed to decipher which digital imaging website they were using. They needed to implement the outline and create the digital images project that was discussed and outlined for a specific grade, with a specific subject, meeting New York State Common Core Learning Standards.

Students completed and submitted their draft projects online as well as through email. A folder for each group was created online so that each group member had access to the group member's draft project. Each collaborative group had time to view and critique other group members' work. By critiquing the drafts, students were able to provide each member with some ideas to ponder about.

As part of the assignment, students were critiqued and required to offer suggestions for ways others could improve their projects. This allowed students to critically analyze their own project as well as their fellow classmates' projects. In the critiques, a format of structured questions was asked to insure that the projects were reviewed critically and not just given a "good job" response. The questions that were used to guide the critiques were:

Was the student following the guidelines of the project?
Was the student describing an instructional activity through images?
Was the student using voice to illustrate and describe through the images?
Does the student have between 5-10 images in the instruction?
Was there a flow to the draft presentation?
What did you like about the instructional imagery?
What did you dislike about it?
Were there any areas that need to be added to the draft to make it a final project?
Were there any areas that needed to be deleted?
Can you offer this student any additional information to make their final project better?

Critiques were submitted to fellow classmates as well as to the instructor via the group folder using the questions above as a guideline. With formatted questions it was easier for each student to follow a structure and be able to properly critique.

Due to the interest, insight, and delays from illness and lateness, students were given an additional week to complete their critiques.

This week was given so that all critiques could be read and reacted to. The discussion groups already created were used to clarify the critiques as well as the suggestions and aided in lively discussions. Students engaged with each other regarding comments and suggestions. The atmosphere was positive and inspiring. The revisions made by the peer groups were considered for implementation. In the face-to-face meeting groups met again to clarify the critique and finalize decisions for the final project. This face-to-face meeting also served as critique time for students whose work was submitted late.

A week later the final projects were submitted. After the submission of the final project, a final step in the assignment was to write up a review entitled “my growth”. This was a reflection on the assignment

in general. The focus was to discuss how the students enjoyed and did not enjoy about the assignment. The growth assignment also served as a tool to see what was learned throughout the process. Students discussed how they felt the peer groups worked as a whole and how the collaborative activity worked.

CHALLENGES ENCOUNTERED IN THE BLENDED ACTIVITY

There were some challenges that occurred while completing this activity and project. The first obstacle occurred when three of the students that are taking the course revealed to the instructor that they are not pursuing a degree in teaching. This affected the assignment because they did not have a class to assign this project to, and they do not follow New York State Standards or even understand what this component was. The way that the instructor resolved this issue was by assigning these three to a collaborative group of their own. The component of the classroom and the implementation of the project were eliminated.

The second challenge that occurred was that students did not submit their drafts in a timely fashion. With any real time situation, life can sometimes get in the way. The instructor had one student who had a death in the family and another who was ill. These students were not able to submit their drafts on time. This limited the amount of feedback that they received.

A third obstacle that occurred was that one student never attended the last three weeks of class. This student did not provide feedback to the group and they were not able to provide feedback to the student. The instructor tried to contact this student via email and telephone and was unsuccessful in reaching her.

RESULTS OF OUR BLENDED ACTIVITY

After the project was analyzed by the instructor as well as the “my growth” assignment was reviewed it was agreed upon by students as well as the instructor that the blended activity was a success. Students felt that both the discussions online as well as the face-to-face discussions between group members were helpful and informative.

The students felt that the feedback from their groups was very helpful and informative. They felt that the comments made by the group members were helpful and greatly influenced their final project. Students stated that without the group member critique they would not have revised their draft. They stated that the collaboration and the critique allowed them to realize errors in their draft as well as ways to improve. The students felt that the groups were helpful online as well as face-to-face and that the online component allowed them to view the projects as a whole as well as allowed them to pause the project, create notes, rewind, and so on.

One component of the project was for students to write about their growth in the course. Many students wrote about their general growth in the area of technology. Other students wrote about their excitement about their ability to use the knowledge that they received from this assignment and use it on another project or lesson. Students also reflected on the project as a whole and how their minds were opened up to things that they did not have confidence that they could do or even knew that these technologies were out there.

A positive part of this project was that some of the students are paraprofessionals and they decided to show their final project to their classroom teacher. In five cases their classroom teacher were so happy with the project, the classroom teacher asked the student to implement this lesson into a future class. The students felt that their hard work was recognized and some of the paraprofessionals felt that it was a correct decision to be pursuing Educational Studies as their degree.

REFLECTIONS

As with any study, it is important to look back and reflect on what was done and achieved. One area which needs to be improved upon when given in the future is to create a rubric. By providing the students with a rubric in advance, they would be aware of all the areas in which they were evaluated. Students would be able to see which part of the assignment was weighted heavier than other parts. Also by providing a rubric, the students would be able to provide feedback that related to the rubric as well.

A change that would need to be made to this assignment for further use would be that the assignment be created for those students without educational background or educational pursuance. The instructor changed the assignments as needed at the time it was given. However, a more concrete assignment should be constructed so that the rubric reflects an assignment whether a students is in the education field or another field.

An aspect of the study that the instructor found beneficial was the excitement that students felt in sharing the assignment. This excitement was not predicted and it was such a refreshing part of the assignment. When this project is completed in the future, the instructor would like each student to not only share the project with the group for critique but also share the project with the class once it meets its final stage. There were such a variety of approaches in the assignments that the exchange of ideas would have been beneficial to all the students in the course. Also because this digital images project was completed with a voice component, presenting this assignment may be easier for those students who are fearful of giving a live presentation.

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Engaging Mathematics Teachers in Critical Thinking Activities in an Online Setting

BY LYNÆ E. WARREN, PHD

INTRODUCTION

There are many challenges in planning and teaching a mathematics methods class online to graduate students who are distributed across New York (NY). Among the challenges, are those which pertain to keeping the group connected in order to build community and requiring them to think about pedagogy in ways that are different from their traditional beliefs about teaching and learning. The question specifically is, “How does one create meaningful learning experiences during which students are challenged to think critically and to engage with the online community when the learners are stretched across NY?” Embedded in this question are a few challenging components

which are noteworthy. Thinking critically requires one to step beyond one's own understanding of what is being learned, in order to consider others' perspectives and then to weigh the most logical understanding, based on multiple perspectives. Critical thinking assumes that there is a decision-making component pertaining to a problem or complex situation which must be resolved. By engaging in the process of critical thinking regarding a problem, the likelihood is greater that a 'best' solution to the problem will be found.

In order to provide opportunities for learners in a course to most effectively examine multiple perspectives, reading a variety of authors and establishing peer collaboration are helpful. The logical group to collaborate with would be other students in the class. This is most effective when students are comfortable raising issues and challenging ideas. To ensure that this is possible, decisions need to be made by the course instructor so that students develop relationships and build trust. The focus needs to be on seeking the best resolution to a good, challenging problem rather than on completing an assignment for a course. This requires the instructor to select a problem situation which will help students look beyond the constraints of completing a 3-credit course to solving a problem that is substantive to the students and whose solution will benefit the student beyond the course.

BACKGROUND

The body of research pertaining to online learning has grown markedly in the beginning of the 21st century. The author did a review of research for an article written in 1999, and found very little research published at the time. In 2010, the U. S. Department of Education published a meta-analysis of the research which was much more robust. The analysis found that students in online courses performed modestly better than those receiving face to face instruction, specifically

when the instructional designs included collaborative instruction, $p < .05$ ($+0.25$). The findings did not support putting existing courses online. Courses and instruction needed to be redesigned and restructured to enhance learning opportunities (Means, et al., 2010).

Among the author's own research, a paper presented at the national meeting of the Research Council on Mathematics Learning in 2010, reported that students in an online course taught in a Master of Arts in Teaching program performed significantly better when collaborating, than those who worked individually on the same challenging problem solving tasks. (Sakshaug, 2010). A first cohort of students did not form their own cooperative learning (CL) groups when instructed to do so. As a result, they worked on their own and were unsuccessful at doing real-life problem solving in the areas of number theory, abstract algebra, geometry, probability and statistics. When the instructor placed the second cohort of students in groups and indicated that their collaboration was part of the grade, students engaged in collaboration. When the results were analyzed, it was found that those students working in cooperative learning groups scored significantly higher on the content assessments. In addition, students in the CL groups viewed the learning experience and their own satisfaction with the process more positively than those who had worked in isolation.

The tasks that the learners had been given in the 2010 study by Sakshaug, were very challenging. They were real-life problem solving situations in which the learner was required to apply the mathematical content being learned. In the field of mathematics, problem solving is a critical thinking process. By definition, problem solving requires that the learner be challenged to complete a high-level cognitive task for which the solution is not readily available. Studies find that learning math through problem solving is a powerful tool which helps the learner make sense of mathematics. (Lester, 2003; Sakshaug & Wohllhuter, 2010).

The studies completed by Sakshaug which were published in 2010, focused on studying opportunities for teachers to learn mathematics through problem solving. Learning mathematics through problem solving is highly engaging for the students. It provides opportunities for students to reason, to create models, to communicate about understanding, and to make meaningful mathematical connections to their own lives. However, this is not how most teachers learned mathematics. Thus, learning how to teach this way is very different. Teaching a curriculum which includes how to reason, solve problems, and apply mathematics is difficult if teachers aren't provided such experiences as learners (Ball, 1990; Herrera, 2005). While this approach is highly supported in K-12 mathematics settings and in teacher education programs, many teachers struggle to teach this way. They need multiple opportunities to learn this way in order to prepare them to teach in such a way. They need to reflect on the role of the students and of the teacher in such a learning environment.

The goal in teaching critical thinking in an online setting is to engage learners in cognitively challenging tasks which stretch their thinking in order to maximize learning. Students need opportunities to struggle to understand (Sakshaug, 2013). Opportunities for productive struggle engage students in learning mathematics by grappling with challenging problems (Hiebert & Wearne, 2003).

THE COURSE

The students involved in this course will be referred to as teacher candidates in order to distinguish them from the high school students they are preparing to teach. The teacher candidates were enrolled in their first mathematics methods class. The majority of the class was in their second term in a Master of Arts in Teaching program which is intended to prepare candidates for initial teaching certification in NY.

The teacher candidates had not yet begun teaching in their own classrooms, which typically occurs in the second year in the program. Most were non-traditional career changers. The median age of students in the program is 41 years. The candidates were preparing to teach mathematics in a range of settings including urban, rural, suburban and alternative environments. The course they were taking was 75% online and 25% face-to-face, with different instructors for online and face-to-face. The online component was for mathematics candidates across the state. The face-to-face component was for teacher candidates in all content areas within a particular region, Buffalo, Rochester, Syracuse, the Capital Region, or New York City. The candidates' work and collaboration described in this chapter are from the math teacher candidates who were registered for the online mathematics portion of the course.

The goal of the online instructor was to design an engaging online course which would require candidates to collaborate on cognitively demanding projects. For accountability purposes, individuals were responsible for writing and submitting individual responses to the assessments. Candidates also completed other assignments individually. In addition, candidates interacted with one another via discussion boards about a variety of aspects of teacher preparation including learning theories they were studying, experiences in the field pertaining to observations they were completing, classroom management, assessment, and cooperative learning, to name a few.

Among the assignments candidates were required to complete were two tasks regarding the design of engaging lesson plans. Candidates were put in collaborative groups of four. In the groups, they were to review an existing lesson plan that had been provided. The plans were selected based on a variety of criteria. The first criterion was that the teaching task be algebra content that most mathematics teachers would know well and would be expected to teach. The next criterion was that the lesson plan have all the required components including objectives that were linked to the curriculum, a process that most

teachers were familiar with and would expect to see used in a traditional setting. The third criterion was that the assessment included in the lesson plan be closely aligned to the lesson and the objectives in a way that would be expected. In selecting the lesson plan, the goal was to choose a very traditional plan that was teacher-centered and focused on the teacher modeling the use of an algorithm, followed by students practicing the use of the algorithm a few times with teacher input and support, then students starting homework if there was time left- the format of lesson most candidates gravitate toward. This sort of lesson would not effectively meet the criteria of the state assessment.

Candidates were asked to review the lesson plan and use the on-line discussion board provided for their group to determine how they might modify the lesson in order to provide a more engaging, student-centered approach to math content being learned. The groups were asked to embed components that would encourage students to communicate mathematically using the language of mathematics and that would encourage students to think at higher levels of Bloom's taxonomy, including applying, analyzing, evaluating, and creating. The discussion board posts were used to monitor success and give feedback.

TASK SELECTION

Task selection is very important if the goal is to engage learners in critical thinking. The selection of the assignment required that the instructor consider what was important to the teacher candidates in order to ensure buy-in. If the task was seen as trivial, there would be little need for teacher candidates to engage with one another beyond meeting the minimum requirements for getting a good grade. In addition, the task had to be challenging enough that it stretched teacher candidates beyond what they already knew or understood.

The task selected for use was linked to a new high-stakes assessment which the teacher candidates would be required to successfully complete in order to receive initial teacher certification in the state. This was the candidates' first opportunity to create or modify work to meet rather rigorous requirements for supporting student learning in the mathematics class. The instructor selected a lesson plan that she knew most teacher candidates would view as a very good, solid plan. The plan was about a mathematics topic that most candidates would feel comfortable teaching- solving a system of two linear equations in two unknowns. The focus of the lesson was on teaching algebra, an area where most pre-service teachers feel most safe. The process is step-wise and requires little modification or variation. The teacher would model how to solve a system of equations using the elimination method and the substitution method. Students were to take notes about the procedure as the teacher worked. Then there would be a second round of the teacher modeling with some discussion with the class in order to transfer the procedural knowledge the teacher had to the students. Finally, students would do a few problems as the teacher circulated around the room, ensuring that the procedures were being done correctly. Finally, students would begin working independently on a few more exercises, provided as homework. This model, sometimes referred to as "I do, we do, you do," is very familiar to students but it is not as effective for learning as approaches that center on the students solving real-life problems in which the strategy is needed.

This task challenged candidates' knowledge and beliefs about effective teaching and learning in the mathematics class. Structurally, the lesson plan was well-written. It included all of the necessary components of a lesson plan: objectives, links to standards, procedures, and assessment. It was written to reinforce the type of teaching that the candidates were most familiar with. Many candidates in the program were considered successful in the traditional teacher-centered classroom, so they viewed themselves as successful learners in the I do- we

do- you do environment. They went on to pursue and complete mathematics or math-related degrees at the undergraduate level. They felt comfortable in the lecture-based classroom and many anticipated teaching in the same environment. Thus, asking the candidates to modify what many would consider a very well-written lesson plan was definitely a challenge. It required a level of critical thinking of their own beliefs that they had not encountered. This was a big paradigm shift that instructors in the MAT program attempt to help candidates make throughout the program but which typically doesn't occur until candidates are teaching in their own classroom and their administration requires them to teach in a more student-centered way.

The guidelines candidates were given for revising the lesson plans are those which they will be required to use when submitting their own teaching videos for initial certification in the state of NY. The key components in the guidelines are as follows:

edTPA Task 1: Planning Instruction and Assessment aligns with Assessment of student learning of content based on a pre-assessment (PreA) source;

edTPA Task 2: Instructing and Engaging Students in Learning aligns with description of at least three lessons taught to increase learning based on pre-assessment data;

edTPA Task 3: Assessing Student Learning aligns with Performance task designed/given to assess learning;

edTPA Task 4: Analyzing Teaching aligns with the culminating reflection activity.

The instructor selected the lessons so that candidates were required to discuss the following three components. They were to discuss the tasks they were to complete, the criteria for lesson

modification, and their own perspectives about what would be best choices for engaging learners. From past experiences where candidates worked in online cooperative learning groups, the instructor knew she needed to build in extra time for collaboration. The reason was that the groups were meeting asynchronously. This meant that when a member posted something to the discussion, there might be a few days' time-lapse before someone responded.

STRUCTURING DISCUSSION BOARDS FOR GROUPS

There were several reasons that the discussion board was used for the group meetings. The instructor knew that the task assigned was going to challenge the candidates. How were they to improve a lesson that they thought was good to teach as it was laid out? What could be wrong with this seemingly strong lesson? The discussion board provided them with a place to challenge their own assumption that the plan was perfect as it was- that it could be improved. In addition, the discussion board allowed the candidates to make sense of the criteria that had been set forth which the new plan needed to meet- engaging students in meaningful exploration of the concepts of mathematics; hearing students discuss the content, using the language of mathematics; capturing students using higher-order thinking to make sense of mathematics; providing opportunities for students to apply mathematics to real-life situations. The purpose was to create a collaborative environment in which they looked critically at the lesson plan, based on what they had learned in the class thus far and based on the state criteria.

INDIVIDUAL OPEN-ENDED ASSESSMENT

It is necessary that students are invested in doing the work and reflecting on the process. From past experience and research on cooperative learning, the instructor has found that an individual assessment, given at the end of the process, rather than a group assessment would yield a better understanding of what individual teacher candidates learned and what they were still struggling with. Candidates were given the opportunity to submit a single lesson plan from the group in addition to the individual reflection. However, in most instances, candidates submitted a lesson plan that was at least slightly different from others in their group. There were two candidates of the nine who submitted the same lesson plan. That lesson plan was one of the weakest submitted. They were in the group that was originally dividing up the task, rather than engaging in a critical review of the plan given. It appeared that they continued in the same way with the plan, trying to divide up tasks. They each attempted to revise the plan and make it stronger without a critical review of it. It was clear they had not shifted their thinking to include other perspectives as part of the process, even with their final revision of the plan.

THE ASSIGNMENT

This assignment was posted in the course after the candidates completed the portion of the course which pertained to how students learn mathematics. Included in this portion of the course, traditional ideas of teacher-centered classrooms was challenged, based on current theories of learning mathematics.

For this assignment, your group will use the edTPA Secondary Mathematics Assessment Handbook (2012), what we know about engaging students, and other resources to modify an existing teacher-centered lesson plan in order to create a more student-centered, engaging math lesson that could be used for the edTPA assessment. Be sure you add good resources and cite them, using the APA, 6th ed. format.

Here is the lesson plan: Solving a System of Linear Equations (link provided to students)

There is a discussion board set up with your group names. Your group will discuss how to modify the lesson. Then each person will submit a copy of the modified lesson along with an individually-written narrative that includes the following:

1. Why you modified the plan as you did.
2. How the modified plan better reflects the edTPA criteria.
3. How you know the modified plan is more engaging to learners.
4. Whether working with the group helped you create a stronger plan.
5. What you still have questions or concerns about regarding planning for edTPA.

Candidates were given two weeks for discussion, collaboration, and production of a revised lesson plan, along with the individual reflection on the process.

RESULTS

The purpose of the critical thinking activity was to engage learners in a challenging problem situation which they would be unlikely to

successfully solve in isolation. Candidates were encouraged to come together to discuss what needed to be changed in order to create a lesson plan that would meet the edTPA criteria. What happened in both groups was that some members of the group tried to move the process toward task-completion without any discussion of how the original lesson failed to meet edTPA criteria. The focus was on 'getting the assignment completed'. In one of the groups, there was the attempt on the part of one candidate to divide up tasks in order to complete the assignment without engaging in higher-order thinking. The person, who is referred to as Alpha, explained that she had modified the lesson to a certain point. Alpha indicated that if someone else wanted to take their turn to move it forward more, they could meet the deadline and the criteria. A second member of the group, called Beta indicated that she understood the purpose of the discussion board was for more than creating a to-do list but rather that they should be discussing how the plan was deficient in terms of the criteria. At that point the instructor re-inserted the instructions in the discussion board to refocus the group, highlighting the importance of talking about the task. The group then talked a bit more about what the criteria were and how they might modify the plan. Beta shared a website that the other candidates could access to see lesson plans that were student-centered. Beta used ideas from the website to create one of the two plans that met the edTPA criteria. The others in the group continued to move forward without accessing the resources of the course or the resources shared by the group member. Their resulting plans had students up and moving around the room, but the focus was still on learning teacher-directed procedures.

In the other group, students began to focus on how to get students doing procedures in ways that were different than the original plan. Their group was not as focused on finishing the assignment by the deadline as the first group. However, they moved right to making changes to the lesson plan, as did the first group, without taking time

to discuss the edTPA criteria and what might be missing in the existing plan. One of the members of the group, Delta tried to refocus the group back to the idea that they were to be talking about the existing plan and sharing their own interpretations of edTPA. Like Beta from the first group, she shared references that the others were encouraged to explore. Delta had greater success in engaging her group. The others took a step back from task-completion and explored some of the bigger ideas of the process. In the end, aside from Delta, the members of the group submitted lesson plans that were still primarily focused on learning procedures.

The attempt was to create a paradigm shift on the part of the candidates by providing them with a situation that required them to think critically about their own understanding of lesson planning for effective teaching. The task was chosen so they were initially stumped about what could be wrong with the seemingly strong lesson plan they were supposed to change. In both groups, there was one candidate who had an understanding of what was needed to create a more student-centered lesson. The individual in each group met with different results. In the first group where Alpha was a strong personality, Beta was not really listened to. It was only after an outside party pointed out how interesting Beta's idea was, that Beta's idea was considered. It was interesting that although the idea was discussed at that point, it was still not used. The other three members of Beta's group were not very successful with the assignment. They were later given the opportunity to revise their plan and were encouraged at that point to consider Beta's ideas. In the other group, Delta's was the only revision that focused on student-centered learning. Some other members of her group chose to revise their lessons and were encouraged to reconsider Delta's ideas at that point.

Delta and Beta attempted to bring their respective groups into a space where they were communicating and analyzing the lesson from the perspective of a critical thinker. They met with little success during

the task. However, it was clear as candidates wrote and submitted later lesson plans that they were incorporating ideas that focused more substantively on engaging learners in thinking about mathematics in more meaningful ways. There were more connections to problem situations and to real-life applications of mathematics. Two candidates continued to focus on procedural mathematics as a means of teaching math throughout the course, with little shift.

The challenge on the discussion boards was that in each of the two groups, there were students who just wanted to complete the tasks. They were not interested in interacting with one another about the content of the task, but rather, they completed part of the assignment, sent it to others as an attachment with highlights included indicating where others should step in and add components. There was little discussion about what the criteria were or whether the changes reflected the criteria. One group got mired down in a discussion about a scavenger hunt activity that had little to do with meaningful learning or with the content. This was the first time the group was taking a class together and it appeared that that several were not interested in communicating to learn from one another, but rather were focused on task completion.

SUMMARY

In most instances, candidates modified the lesson to include tasks that would cause learners to be more active but there was not a substantive change in the direction of student-centered learning in which students would be challenged to understand the concept at a higher level than that of learning procedures. Several candidates grabbed onto an idea posed by one that a scavenger hunt where they go around the room and practice a skill at different 'hidden' points would be great. The focus of the scavenger hunt was to get students moving

around. It was not focused on student-centered learning. There was not the substantive change that was hoped for as candidates modified the lesson plan. There was some talk of objectives being too vague. But the discussion didn't include critical thinking or use of prior knowledge regarding engaging learners. One student threw out really good ideas from [engageny.com](#) and YouTube. This person was dismissed by the self-designated leader, Alpha who didn't use any resources to build ideas from.

CHANGES PERSPECTIVES ABOUT HOW LEARNING OCCURS

Initially, the results of the activity were not terribly successful. Several candidates who received poor grades were allowed to revise and improve their lesson plans with suggestions about how their colleagues had used the resources they shared and how that successfully impacted their revisions. Those who used the suggestions and resources they were given made improvements in their product. It wasn't clear that this was a shift in their understanding upon completion of the assignment. However, by the time candidates were doing the culminating unit plan activity for the course, a clear shift from work submitted for past assignments was noticeable. The unit plans were much stronger with regard to real-life connections, problem solving, and student-centered learning. This was where the shift in the learning of many candidates was seen. When the unit plans were compared to those submitted in past terms, a larger percentage of the plans were stronger with regard to real-life connections, problem solving, and student-centered learning. There was some evidence of critical thinking about engaging learners that wasn't present in the work of students from previous terms of the course. The two students who were most interested in dividing up the task in order to complete the edTPA

activity showed the least growth in the culminating unit plan assignment. Perhaps their focus was so entrenched in task completion for the course that they weren't able to consider other approaches.

It was anticipated that working on the edTPA task would build community among the students. The critical thinking task selected was clearly challenging to the class. In past studies, such challenging tasks have brought groups together as they collaborated on the work. In this instance, it didn't appear to happen. One factor that may have caused the results to be different was that unlike in past studies, this group had not been in any classes together prior to the math methods course they were enrolled in. The hypothesis that needs to be tested is whether they needed multiple opportunities to come together and begin to know one another prior to taking on such a challenging task. Further work needs to be done to determine whether the activity itself might have been more successful if groups had been provided with opportunities to collaborate and build community prior to engaging in the task.

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A Transformation to Blended Learning and the Impact on Teaching and Learning

A CONVERSATION BETWEEN
JEFF LINN AND LYNÆE WARREN

This chapter is the result of a series of interviews followed by a joint writing effort. The two authors collaborated on the writing process.

INTRODUCTION

In 1996, Dr. Jeff Linn and I taught in the same education department. At the time, Dr. Linn was not interested in teaching using technology and expressed concern about the risks he perceived that went along with teaching with technology. He often referred to himself as a Luddite- someone who resisted progress that was occurring with technology. About 10 years later, Dr. Linn, who was a school principal agreed to teach a blended learning course for me in the graduate school where I

teach. The course was taught by Dr. Linn with a heavy reliance on the face-to-face portion and with minimal use of the course management design which had been created to support the instructor with regard to the online portion of the course. A few years later, Dr. Linn was at a point where he was a fairly vocal advocate of blended learning. This chapter is a case study of his transformation along with his ongoing concerns.

BACKGROUND

Teaching with technology is a practice that is growing rapidly. Research pertaining to online models of teaching has shown the potential to enhance learning. A meta-analysis by the U. S. Department of Education found that students in online courses performed modestly better than those receiving face to face instruction, specifically when the instructional designs included collaborative instruction, $p < .05$ (+0.25) and instructor directed instruction (+0.39). The report indicated that the findings do not support putting existing courses online. It was determined that courses and instruction must be redesigned and restructured to enhance learning opportunities for students (Means, et al., 2010). The authors suggest that the strongest online coursework is that which is designed to prompt students to reflect on their levels of understanding.

The changes are not just taking place at the post-secondary level. Five states now require high school students to take at least one online course to graduate (Barth, 2013). In addition, some high schools are offering courses online in order to meet the selective needs of students when there is not the financial justification for offering whole sections of a face-to-face course. These changes warrant research by educators to determine the impact on student learning.

Like their K-12 counterparts, college faculty are studying issues associated with online instruction. Among the issues being examined are student achievement and satisfaction; the development of academic content and processes that will engage students; and faculty buy-in. The role of the instructor in the process is being studied. Zhao, et al., (2005) found that instructor involvement was a strong mediating variable in online coursework. They reported that elements such as use of video did not appear to influence student learning as much as the role of the instructor. Bonk (2006) found that students need richer and more engaging online learning experiences, rather than readings and lecture notes. In addition, faculty support and training were found to be critical components of effective online instruction.

In a survey of faculty and administrators in public colleges, private colleges and community colleges, it was found that 69% of the leaders at these institutions reported that they believed online learning was critical to the long-term plans of their institution. It was also reported that 65% acknowledge faculty objections related to the changes. In addition, only 32% of faculty reported accepting the value and legitimacy of online learning and most respondents believed that instructor abilities to teach online were critical to the quality of online education. They also reported that most respondents believed that instructors needed to possess or learn how to moderate and facilitate learning. These findings have the potential to help alleviate some faculty fears related to being replaced by the computer (Bonk, 2006).

Technology is a powerful tool for teaching and learning. Means, et al., (2010) determined that online learning itself is not superior as a medium. Rather, they indicated that online learning must be redesigned to include mechanisms for reflection, instructor-led collaboration and asynchronous communication, including e-mail, discussion forums, and other mechanisms for feedback, in order to create a community of learners that will prosper.

CARING AND COMMUNITY BUILDING IN AN ONLINE COMMUNITY FOR FUTURE LEADERS

Students in online classes, like their counterparts in face-to-face classrooms, need to develop a community or group identity and form relationships with peers and the teacher that enable them to feel that they are in some sense part of a shared pedagogical and emotional experience. They need to know and understand that someone cares. These communities also depend on giving the learners the freedom to communicate and safely explore ideas about leadership in a supportive setting. In a hybrid course a good instructor is, in a sense, modeling one of McGregor's classic management styles, Theory Y. An educational leader embodying Theory Y functions as one who is interested in creating an environment conducive to intrinsic motivation and relationship building (Green, 2013.) Unlike a Theory X leader, whose leadership style would be based on the fundamental belief that the average worker is by nature indolent and prefers to be led, the Theory Y leader embraces the belief that, under the proper conditions, the average human being will not only accept responsibility for organizational objectives but embrace them and share their experiences (Sergiovanni and Starrett, 1983; Green, 2013).

According to Hersh and Burnett (2008), there is a theoretical construct for educational leaders to heed when learning to build relationships. They cite the skills of communication, support, safety, competence, and continuous renewal and trust as factors that must be present in competent educational leaders. Caring is part of the process of exploring how educational leaders create support to build relationships.

The idea of caring in education is not a new idea, but it may be new to mention it within the context of hybrid or online learning. Caring about and for students is central to educational success (Noddings, 2013). In her work, Noddings points out that educators show what it

means to care by modeling and engaging in dialogue, a process she refers to as reciprocity, and through these conversations both student and teacher benefit and learn from their experience, which Dewey (1938) called the social set-up of the situations in which those persons are engaged. While Dewey may not have anticipated the idea of on-line communities, it is not a stretch to imagine that both Noddings' dialogue and Dewey's social experiences could be implemented on-line. In his classic work, *Experience and Education* (1938), Dewey made a case for caring and pathos when he wrote, "Does not the principal with regard for individual freedom and for decency and kindness or human relations come back in the end to the conviction that these are a tributary to the higher quality of experience?" (Pg. 74). In her work, Noddings also says that for caring to flourish, environments must foster a sense of community that involves receiving others' perspectives, responding to those perspectives, and remaining in the community. In other words, she describes a connection with the careers (Noddings, 2013). Virtual networks can fulfill the elements of a community. Engagement in Facebook by millions of participants supports this point. Pedagogical and course-based communities can also be those caring communities. Beck (1997) calls caring a "different type of reform" (pg. 454) and echoes some of Noddings' ideas when she refers to elements of a caring ethic needed in Educational Administration. In talking about experience as the social set-up of the situations in which a person is engaged, Dewey linked to ideas of prescience.

A culture of caring is vital for successful performance in the business and professional world, as described by Fullan (2000), who points out that a caring expert is an organization member who reaches her level of personal mastery in tacit and explicit knowledge and understands that she is responsible for sharing the process. This is a fitting description of an educational administration faculty member who needs to share those leadership processes with her students. Fullan also indicates that effective leaders understand the value of knowledge

creation and create processes that allow for this. The use of hybrid and online coursework is one of those mechanisms.

The act of caring is an important enough skill to be included in both the National Council for Professor of Education (NCPEA) position paper as well as the eLearning Consortium of Colorado (eLCC) standards. For example, both eLCC district and building level standards 2.4 require candidates to understand and promote effective and appropriate district technologies to support teaching and learning within the district and all of eLCC standard 5.0 deals with modeling reflective practices, self-awareness and promoting social justice, skills that can be well served in an asynchronous, online discussion. The National Council of Professors of Educational Administrations (NCPEA) urges Educational Administration faculty to model interrelated leadership that creates a “collaborative culture indicative of a learning organization.” (Wells, C., Shelton, M., and Marshal, R., 2012, p. 3) They caution educators to prepare students to focus on a collaborative, shared and mutually beneficial and democratic leadership style. The authors indicate that after a review of the standards for teacher leaders and school administration programs, educational leadership programs must focus on building relational trust and viable partnerships.

As reflected in the NCPEA position paper, future faculty in Educational Administration programs must offer “nimble and entrepreneurial” approaches to prepare future educational leaders. These approaches must be developed during a time of diminished monetary resources and utilized by a population of college-based Educational Administrative faculty who are not digital natives but we can evolve by combining face-to-face coursework with hybrid models.

THE CASE STUDY DESIGN AND THE CHALLENGE

Among the challenges in transitioning to blended or online learning is to broker the entrance of students and faculty into a complex

education community in a productive, positive way. For many, this means an epistemological change in addition to a pedagogical change. The research-based ideas about good teaching and learning in a blended environment are different from what some who teach in higher education may perceive. Many professors have had their own somewhat learning experiences in traditional education. Often, these experiences treated knowledge as extrinsic to the individual. Many professors currently teach from that epistemological perspective. In this chapter, the tools a seasoned professor developed and used to navigate the change to a blended format will be examined. Dr. Jeff Linn was interviewed at different points along his own journey toward teaching in a blended environment. Included is an examination of the beliefs about what knowledge is and a discussion of traditional ideas and politics pertaining to teaching in a blended setting.

METHODOLOGY

This is a case study of a professor who transitioned from teaching solely in a face-to-face mode to teaching in blended and online environments. Data were gathered from three interviews with Dr. Linn during the spring of 2013 and from three courses he taught from 2011 to 2012. The focus of the interviews was in three areas: possible paradigm shifts on the part of Dr. Linn, strengths and weaknesses Dr. Linn sees in teaching using the blended and online environments, and means by which others who are hesitant to shift might consider whether there are reasons to explore one of the other modes besides face-to-face teaching and learning.

The questions being explored by the researchers are as follows. What were the reasons a resistant professor made a dramatic shift to

using blended and online modes of teaching and learning? What concerns were present? What validation has caused him to determine to continue? What concerns still exist?

EVIDENCE RELATED TO THE STUDY

The evidence provided in this paper is based on qualitative data, including three interviews, and the course-based experiences and interactions compiled by the authors. The data comes from dialogue between the authors and from interactions which occurred between Dr. Linn and his students- graduate students in an Educational Leadership course taught during the fall of 2012. There is a large quantity of data from communication and discussion in the online portion of the course. This allows the authors to look more closely at evidence because so much of the interaction is recorded and is available from the beginning of the course.

DR. LINN'S BACKGROUND

Dr. Linn taught at a college for fourteen years in a traditional face-to-face environment. At the time, he was preparing elementary student teachers for licensure. Dr. Linn used technology in a very limited way and spoke openly about his concerns regarding the use of technology. In 2000, Dr. Linn transitioned to a position in a school district where he remained until 2012. In the summer of 2011, Dr. Linn taught a three-credit blended course as an adjunct professor. The title of the course was Teaching Diverse Learners, taught to non-traditional students in a graduate program. The content of the course was something he had expertise in. The blended model was new to him. He used the online component in a very limited way. In 2012, Dr. Linn was asked to teach the course a second time. After he agreed, it was determined

that the course needed to be offered fully online, in order to meet the needs of students at another location. Due to the fact that the course was fully online, it was necessary for students to respond to questions on the discussion boards and to submit assignments via the course system. Dr. Linn graded shorter assignments using the response window in the drop box. More substantive assignments were printed, graded and returned to students by post.

In the fall of 2012, Dr. Linn accepted a position at a college, teaching as a tenure-track professor. During that term, he decided to teach Foundations of Educational Leadership (6 cr.), a graduate-level course in a blended mode rather than fully face-to-face.

SUMMARY RESULTS FROM INTERVIEWS WHICH TOOK PLACE DURING 2012-13.

Dr. Linn was interviewed about his experiences as he taught his first blended and online courses, in addition to his experiences teaching the 6-credit educational leadership course during the fall of 2012. The questions were asked in order to determine what the reasons were that a technology-resistant professor made a dramatic shift to using blended and online modes of teaching and learning; what concerns were present as he made the shift; what validation caused him to determine to continue; and what concerns still exist. A summary of Dr. Linn's response to the questions is listed below each question which was asked.

QUESTION 1: WHAT IS YOUR PARADIGM ABOUT HYBRID COURSES?

In response to this question, Dr. Linn focused on the story of how he arrived at the point where he was interested in teaching a hybrid course during the fall of 2012. The concerns he voiced as he progressed

through his story had to do with his ability to use technology effectively to communicate with his students about the work they were doing and about the ideas they were discussing. Dr. Linn said, “My paradigm has always been that the teacher is the difference and I wondered if I could be that difference online or in a hybrid [course].” Having the content knowledge to teach in different modes was not a concern since Dr. Linn was teaching a course he was expert at.

QUESTION 2: WHAT WERE YOUR CONCERNS AS YOU MADE THE SHIFT TO A FULLY ONLINE MODE IN TEACHING DIVERSE LEARNERS TAUGHT DURING THE SUMMER OF 2012?

Dr. Linn’s main concern was about his ability to be effective in communicating online as he was in a face-to-face setting. Videoconferencing was an option that was available to him. It was easier not to use it as an additional layer of technology. Online learning and the management system were not intuitive. Even after an additional term of experience, he reported technology glitches where whole sections of text were written then lost. He found it frustrating. He would type what he called a significant and thoughtful response to a student, and then lose it. He would then say to the student, “I wrote you some feedback but it disappeared.”

When he spoke with technology support staff about the issues he experienced frustration. The least helpful thing was when a technology-savvy person would say, “Oh, that’s easy!” Dr. Linn said during the interview, “Encountering technology people who aren’t teachers is challenging.” He found that in the course management system he was using, he had to leave the site where the problem was in order to get help which was frustrating. He reported that sometimes he got good advice when he phoned an expert. “I quickly learned that if I wanted to

do hybrid and online learning I had to ask for help and to learn by doing.”

In addition, Dr. Linn was concerned about giving up his belief that teaching is ‘looking people in the eye.’ He said, “I can see if you don’t get it [when we’re face-to-face].” He felt that the non-verbal communication which would be missed in the online environment was information that he needed as the teacher. He was concerned that he would not know of students’ misconceptions because he wouldn’t see their non-verbal responses. Dr. Linn also expressed concern about giving up control of his class and admitted that it was both a process concern and an ego concern. This concern was later shown to be lessened as Dr. Linn spoke of student misconceptions bubbling to the surface on discussion boards, as part of written assignments or during communication.

QUESTION 3: WHY DID YOU DECIDE TO TEACH THE FOUNDATIONS OF EDUCATIONAL LEADERSHIP COURSE (6 CR.) IN A BLENDED FORMAT DURING THE FALL OF 2012?

Dr. Linn indicated that the option to design and teach the Foundations course in a blended format was provided. It made sense, given the scheduling and learning challenges when teaching a 6-credit course face-to-face, on Friday evening and all day Saturday, after his students had worked all week. He was interested in exploring the blended option and felt capable of managing the modification, although this was his first time teaching the course. This was seen as a leap given that he had only used blended or online learning in two iterations of a three-credit course someone else had designed and he had taught. Dr. Linn explained, “There are many aspects of blended learning and online learning that have big learning curves, but stepping off into the process has the potential to be much less daunting than it first seemed.”

When asked why, he explained that he had overcome some fears about the level of learning that could happen. He knew he would see his students ($n = 22$, approx. ages 26 -45) on seven Saturdays in the fall semester and teach the same group again in the spring. Most of his students weren't moving into Educational Leadership without at least few years in teaching. The mean age of the students was about 33. Because of this, he said he could expect a level of maturity in completing assignments and engaging in online discussions.

Had Dr. Linn not modified the course to be blended, the class would have met Friday evenings from 5 – 9 pm and Saturday from 9 – 4:30, all day, for seven weeks. His students would all work full-time during the week, then would come in for a marathon session on Friday and Saturday. He didn't think that was the best instructional design. He thought that working with a hybrid model would better prepare them for the Saturday class. The original model would have a point of diminishing returns.

Dr. Linn explained his rationale. He knew he wanted them to do significant reading and that the content was significant. There needed to be time to read and internalize the readings. He wanted to structure and ask questions that would make them think, reflect, and write at higher levels of Bloom's taxonomy. Then they would interact with him and their colleagues about the reflections in the Saturday sessions.

When the interviewer described the blended learning environment as a lucrative approach to effectively engage professionals in a way that will best fit their structure, Dr. Linn didn't agree with the use of the word lucrative. His response included the following comment. "I don't know if I would use the word lucrative. I do know that teachers are tired Fridays at 5:00 and I saw this model as fitting partially because of that. I thought it would give students a chance to research, think and write throughout the week."

QUESTION 4: WHAT DID YOU THINK YOU WOULD GET WITH THE ORIGINAL DESIGN [OF THE COURSE]?

“I thought that the level of cognitive engagement in a face-to-face setting on Friday night wouldn’t match what I could get with the online or on Saturday.” He had heard that one of the criticisms of the original model was the Friday night- Saturday limitation.

In contrast, he found that there was a high level of online engagement in the discussion posts by students during the week prior to the Saturday class. Dr. Linn designed the course for students to read a book and selected readings throughout the semester. Sometimes questions called for them to research a topic on their own and provide an answer. Most responses called for citations. “For example in one question (posted online), I asked students to interpret a statement on leadership gleaned from the text and provide citations from other sources to support their answer. I also required students to reply with comments at least three times to their colleagues, so with a class of twenty-two I should have at least 80 entries. I got over 125. And this was not an anomaly.” Over the course of the semester, Dr. Linn ended up averaging approximately 125 entries per discussion. Some were as long as 6 paragraphs, while other posts extended the discussion in a few sentences. “I had framed some of that by starting the first few assignment with phrase like, ‘In a least a three paragraph response...’ but I was still pleasantly surprised with how fast students formed a community and found out that I could still impact them by my questions in the online setting.” There was evidence that he allayed his own fears of reaching them online.

QUESTION 5: WHAT’S STILL PROBLEMATIC [FOR YOU IN THIS MODE]?

Dr. Linn was still concerned about his own understanding of the technology. “I still don’t know how to do everything technological to make

this course better.” The components he identified as areas he didn’t know pertained to enhancing the course. “How do you add videos? Other media? Links to Internet?” He indicated that he knew how to link to files. He used drop boxes and the grade book. The links he referred to as the bells and whistles. He indicated that he knew others use all of them but he didn’t know how to. And he was not convinced that group work would be as effective in an online model. “I am changing my mind and learning as I go. And I am not as intimidated as I once was.”

QUESTION 6: IF THE 6-CREDIT COURSE WERE FULLY ONLINE, WHAT WOULD YOUR RESERVATIONS BE?

The concerns voiced were about interacting personally with the students.

“Educational Leadership is about interacting with people and building relationships every day with parents, teachers, children and the community. You’re in the people business. You need some face-to-face interaction. Plus in this course I bring in a number of guests for face-to-face interactions: principals, Assistant Superintendents, Director of SPED [Special Education]. I don’t know if these guests would have the same power online.”

Dr. Linn pointed out that there are now Educational Leadership programs that are entirely online, as there are in other programs outside of education. He did wonder how students could complete important group projects, bring in guests like Board of Education members and principals and engage in conversations on management and leadership that allow for give-and-take that he believed could only happen in real time, with everyone in the same location.

QUESTION 7: HOW MUCH IS ABOUT DISPOSITIONS? OBSERVING THEM FACE-TO-FACE?

Dr. Linn's response focused on student self-awareness.

"I've had a number of discussions with students this year that are some variation of 'How do others perceive you?' These are students who are in a leadership program and, through their actions and/or responses, both in class and online, have exhibited some form of bias or inappropriate behavior that I needed to address privately and face-to-face. In a traditional class I can 'see' and discuss dispositions and give them private feedback. That feedback allows me to model my approaches to dealing with issues and turn them into teachable moments. I have learned that while I can create a reflective and caring environment in an online setting I am still unsure if I can truly tackle issues that carry a heavy emotional load online."

Another concern expressed by Dr. Linn was the ability to offer real-time feedback. This is feedback during which

"...I can model what I mean or want particularly in a group presentation. I also cannot take full advantage of a 'birdwalk' and teachable moments or to monitor and adjust instruction based on an experience that one of my students had or has had that day in a professional setting."

From her own experience, the interviewer knew that Dr. Linn would have opportunities to do this in the online environment. She asked, "Is there a sense of what we think of when talk about timely responses? How immediate does the response need to be in order to be effective?" In a later conversation, Dr. Linn indicated that he had adjusted his thinking and was able to take advantage of birdwalks and teachable moments in the blended learning environment.

QUESTION 8: WHAT CONTENT IS MORE APPLICABLE TO TEACHING FULLY ON LINE ?

Dr. Linn was still focused on the idea of reading student perceptions as he responded to this question. He felt that some misperceptions would surface in the online format.

“With face-to-face, you’re forming human relationships. In a hybrid you can do the same but students must think about their responses. One [student] can’t totally rip [another] because you’re going to be sitting next to them next week. But perhaps online gives students more freedom to express ideas that would not be expressed in front of 20 peers. And it gives them time to do deeper thinking and research if prompted.”

In further conversation with Dr. Linn, it was agreed that perhaps students have more freedom to be biased on line. In fact, the instructor might be more likely to see a student's bias in an online response and thus be prepared to address such bias. Dr. Linn indicated that inappropriate responses were on issues of race or social class. He believed that it was more uncomfortable for people to address inappropriate responses face-to-face than online. Students would also have more opportunities to review what they would say for content or tone. He stated that some sensitive content may be more appropriately addressed online because biases bubble up. It may be easier to take the first step online. In addition, a student who might be less comfortable expressing an opinion might hear others' perspectives and learn from those before commenting. Dr. Linn discovered that that same three or four students would start a discussion and do the 'heavy lifting' that addressed questions or prompts. He solved this by asking the few early-responders to hold back their responses for a few days. While it was challenging to the students who wanted to get the assignment done the instant it was posted, they agreed and others were required to weigh in.

QUESTION 9: DO YOU HAVE CONCERNS FOR STUDENTS DUE TO THE HYBRIDIZATION OF THE COURSE?

Dr. Linn responded that the hybrid was the best of both worlds. If students needed more follow-up in-person, there was that option. “There is a population of students for whom higher-level thinking and writing are a challenge. In a hybrid class you can identify them more quickly. You can give them examples of how they ‘can’ think at a higher level. I like being able to give specific feedback to an individual or the group.” In addition, he felt like he knew their writing/cognition at a much deeper level. “There’s a freedom people have when sitting at the computer. They can work at a higher level. Or you can demand that. I believe that’s what I got.”

He saw that the blended approach was a win-win along several fronts. There were more opportunities for communication and connection with students because there were multiple modes of communication. Student writing needed to be of good quality, which was something he wanted to promote in graduate studies. In the online forum, Dr. Linn could require students to follow-up with improvements to their work. For example, “In your answer you did not support your point of view with citations from the assigned reading. For full credit go back and find more support.” He would model the type of answer he was expecting. “I thought through hybrid I got to know the students better than in a traditional model. And they got to know each other better also. And yes, writing is thinking and they had to write.”

QUESTION 10: WHAT DO YOU THINK HAPPENS WITH RESPECT TO WRITING?

“For those who are struggling with writing, this is more challenging. Part of my job is to help them be better writers. It’s about getting people to push themselves to be metacognitive- to truly make themselves examine their strengths and weaknesses.”

“In a graduate program they need to be better writers. Levels of writing required are high. For example in a prompt early in the semester that asked students to interpret a concept they just read within the context of a leadership issue that was facing the schools, a student had trouble making a connection. Instead her answers were a series of short paragraphs that contained self-centered 'I' statements like 'I have patience and understanding.' And 'I want to help people.' I grade entries 1-3. This entry received a 1 and feedback from me on the type of things she could do to resubmit it for a higher score. Two months later that student answered a similar type of question with an answer that was significantly longer and contained topical citations and information.

“In addition, I’ve found that students pose their own questions to take the discussions further. Three or four change agents (students) create new trajectories for discussions and this leads to a culture where people trust one another to challenge them to think more deeply.”

QUESTION 11: WHAT ARE POSITIVES THAT PROPEL YOU FORWARD?

Dr. Linn observed a higher level of thinking and cognition. From most students he was able to get that- probably three-fourths of the students. The ones he didn't get that from showed moments of clarity. The few students who weren't at that level tended to come into discussion boards at the last minute. They also didn't provide more than a minimal response. He knew after two weeks who wasn't strong because of the online component, which was well before a midterm paper or project would be completed. The weaker students were always the last to respond because they were up against the deadline. By early in the next week, there would be 12-13 entries. And the same people would respond the day it was due, at the last minute. The documentation supported their pattern of response. The level of thoughtfulness in their work was noticeably weaker than that of their colleagues.

OTHER POSITIVES?

There was a high level of thoughtfulness and engagement among peers. In the face-to-face class, typically five of the 22 students drive discussion forward. In a hybrid everyone must respond so more students are heard. In a leadership course some students found this forum is more suited to their leadership style. And Dr. Linn felt he was able to challenge the students to think more on their own. "You don't have to have people in front of you for eighty hours to get them thinking." Taking their thinking further online has a positive impact on the face-to-face meetings as well. Dr. Linn indicated that he could create a level of cognitive dissonance in class; he could shake up groups and create cognitive dissonance. They can ponder ideas at a different level because of what he had them do online.

A student is not able to fly under the radar in the online part of a course. The fact that everyone has individual demands in multiple ways is good. They can't just submit a few papers over the course of a term and sit back in the back of the class. Discussion boards and written responses to readings each week require a higher level of engagement. Dr. Linn also found in the online setting that students would continue the conversation beyond where he might have stopped it in the classroom, due to limited time. "Someone else will add an idea or thought that I did not and this will take the class in another direction that I did not think of. This happened and when it did it was often rich and powerful." This continued into the spring class. Dr. Linn acknowledged that students were taking the class deeper into an issue that he might have overlooked. Students challenged others on their thinking and reasoning. They would add a link or citation to a prompt, in order to support their response. It would open a door that Dr. Linn might not have opened.

QUESTION 12: WHAT HAS SURPRISED YOU?

Dr. Linn responded, "I had the misconception that online teaching and learning is easier for students and instructor. When you get online, interacting with students, time melts away. There's a level of engagement or thoughtfulness/interest that you wouldn't think you could get. I'm limited by my ability to type much slower than I can talk."

He acknowledged a time-commitment that he had not anticipated. He spent time on mechanics that wouldn't be spent in a face-to-face conversation. For him this was time consuming.

"For example, say I write a 6-sentence response then edit it. That may take me 10 minutes. And say I do this multiple times for one of three or four questions I have asked in a week

for all 22 of my students and then add some group responses. Hours melt away. The teacher speaks faster than he writes.”

The high level of thoughtfulness and thoroughness that online responses provide has rewarded Dr. Linn. If the questions were well formulated, the responses by students were very good. In addition, he was able to respond to individuals in ways that would take their thinking further.

“The level of individual communication per student was significantly more than it would have been in a traditional course... You get more e-mail because you’ve created a level of trust, because you’ve formed a relationship with them- because you’ve responded to them online. People will open up more to you, even before you know who they are.” (He indicated that he meant even before he recognized them by face.)

“In f2f, you know the three pains-in-the-butt and the three overachievers. You don’t get to know the 16 in the middle. Now you know the 16 in the middle *because of online.*” Italics reflect his stress of those words.

HOW WOULD YOU SUGGEST SOMEONE PROCEED (WITH THE ONLINE COMPONENT)?

“ I would share my experiences and tell them that for me hybrid teaching served to enhance my teaching rather than diminish it. I would also say that this model of teaching has the potential to create a caring, and more thoughtful learning community and that this is at the heart of what we do as teachers. And I would suggest that if you work on your questions, readings and prompts then you can create opportunities for your students to think more deeply about your content and become more engaged in your course.

I'd also tell them that some technology systems can be challenging and aren't intuitive. Work can be lost and time spent that cannot be recovered and that can be frustrating and the people who dismiss these concerns can also tick you off. When someone sends the message, 'Your worries are unfounded.' it's problematic. Digital immigrants' worries need to be validated."

Dr. Linn added later that he is getting better but still has much to learn. He believes that he must evolve if he is to continue to grow in his field. In spite of the challenges, he sees that he can do good things for students that he wouldn't have otherwise been able to do. "The online component makes people think and the community is stronger than when the interactions are limited to only classroom time."

THEME AREAS: CHALLENGING TEACHERS TO THINK DEEPLY ABOUT CONTENT, CREATING STRONG CONNECTIONS TO TEACHERS ABOUT THEIR UNDERSTANDING, TECHNOLOGY.

The responsibilities that instructors take very seriously have to do with providing the best learning experiences for students. This makes the transition to a different learning mode high-stakes. Past research indicates that caring interaction from the instructor makes a difference to the learner in the learning experience. Caring instructors need validation that they will still be able to successfully engage and interact with their students. A commitment to engagement is present when instructors are transitioning to a blended instructional setting. In addition, effective ways in which good teaching can be translated to the online environment need to be shared with instructors so they're able to build in strategies for making an effective transition earlier rather than later. This is critical so instructors who are in the initial stages of transitioning are provided with support for success.

Dr. Linn worked to build community as well as to engage the students in cognitively challenging tasks as part of the online component of his classes. (Boston & Smith, 2010). The tasks and expectations were challenging the students to think deeply about the content they were reading. He was focused on engaging them in dialogue beyond simply restating the content of articles they read. Dr. Linn was inspired to continue because he saw the impact on his students that would not have been present in a face-to-face session on Friday evening at the end of a long workweek.

POLITICAL ASPECTS OF ONLINE LEARNING ENVIRONMENTS WHICH SURFACED

The concern was raised about the potential for hiring non-qualified people to deliver instruction in online settings. Dr. Linn has seen the teaching profession come under attack. He has seen unions broken. There's the misconception that anyone can teach. Is this job creation? How will critics use the misconception that anyone can teach against teachers?

“It feels like sleeping with the enemy but our students have fewer reservations than I do.”

Online learning has the potential to be cheap labor for institutions. It is a political issue and in some ways a corporate model of learning. In a decade, will teachers go the way of the travel agents? In an era when over a quarter of jobs in America pay below the poverty level, one cannot overlook the role that online learning can play as a way to hire less qualified, untenured faculty for very little money. The thinking and planning that goes into online learning is professional work but will it be considered less professional down the road?

Teaching and learning in the hybrid and online environments is very real. Who but education specialists should lead the research on

what is effective? What is good learning and teaching in a blended or online environment?

CONCLUSIONS

Teaching is a cultural activity. (Stigler and Hiebert, 1998). There are subtle aspects of teaching that don't necessarily change because a practice is changed. When a professor or instructor engages in a reflective process of examining the impact of change on student learning, the potential is greater that the change will be more than just a practice. This self-examination of teaching and its' impact is positive. There will likely be movement back and forth along the spectrum in the process.

By exploring how professors begin the process of engaging in dialogue with students in a blended environment, the hope is that those who are in a position to explore this mode of engagement will add their own voice to the process. Ideally, other professors and instructors would have opportunities to see how much more engaged learners are in the process since everyone's voice is heard. By gathering data about the impact of the dialogue on student learning, teachers are provided with more opportunities to look at the evidence of their pedagogical choices on learners.

More research must be done on the types of questions that we ask our online learners. They cannot all be at the knowledge level. We must scaffold questions for our learners. The process of learning requires humility and one must embrace it. It will take years of practice to fine-tune a course that is great but there is already progress in Dr. Linn's class. "And my final thought is that I still have to be a teacher."

Professors, like teachers move in a space of beliefs about many things pertaining to teaching. Each belief is like a vector that they move along. (I don't understand this) Sometimes they move forward. Sometimes they move back. Sometimes the whole vector moves as a

result of an epistemological, pedagogical, or cultural shift. That shift can impact other shifts. For those who are going into teaching with their eyes open to the impact of their teaching on learners some very positive changes are taking place. Researchers of online and blended learning will continue to examine the impact of the design of the program in order to provide more opportunities to examine and shift toward the most effective approaches. The ultimate goal is to impact student learning in the teachers' classrooms.

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ISBN 978-0-9905885-1-1



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