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Using a Learner-Centered Approach to Develop an Educational Technology Course

Mariam Abdelmalak
Assiut University

Jesús Trespalacios
Boise State University

The article explores the structure of a graduate educational technology course that used a learner-centered approach to prepare students to be independent responsible learners. Key features of this approach were the balance of power between the instructor and students, involving students in decision-making about their learning, sharing the responsibility for learning between the instructor and students, and using students' needs and interests in the course content. The article describes how the decision-making power was shared between the instructor and students, as well as how students responded to the course structure. This work has implications for creating learner-centered environments in which power and responsibility are shared between instructor and students in all graduate education courses to nurture the development of responsible learners.

Taking responsibility for one's own learning is an essential practice in higher education classrooms. Blumberg (2009) argued that students become independent learners and assume responsibility only when they have various opportunities to exercise learning and responsibility skills and consistently receive formative feedback to help them improve. College and university students should practice taking responsibility for their learning, and should practice doing so during their formal education and throughout their personal life (Weimer, 2002). Especially, the skills students acquire during their formal educational experiences will be used throughout their professional and personal lives (Weimer, 2002). For that reason, the development of independent learners who assume responsibility for their own learning should be the inevitable outcome of formal educational experiences in higher education (Blumberg, 2009; Weimer, 2002). The development of independent responsible learners cannot be achieved by the instructor-centered approach to teaching and learning, in which the instructor is the primary decision maker and sole deliverer of knowledge. Rather, preparing students to be independent responsible learners can be achieved by learner-centered environments in which students practice these skills (Blumberg, 2009; Kramer et al., 2007; Ongeri, 2011; Weimer, 2002).

This article discusses the structure of a graduate educational technology course using the learner-centered approach in which students were given opportunities to take responsibility for their own learning. This article begins by explaining the concepts of instructor-centered and learner-centered approaches. Next, it will describe how an instructor used a learner-centered approach in a graduate educational technology course and how students responded to this course. Finally, implications of the learner-centered approach for higher education courses will be discussed.

The Instructor-Centered Classroom

In a traditional model of an instructor-centered classroom, the instructor is the sole deliverer of knowledge and the primary decision maker. The instructor is seen as having a majority of power to educate, while students most likely see themselves as having secondary or no power (Manor, Bloch-Schulman, Flannery & Felten, 2010; Shor, 1992). The instructor alone "defines the knowledge to be dealt with, prepares the medication, and disperses the knowledge according to the prescribed dosage" (Boomer, 1992, p. 4). The instructor is the only one who decides the content students learn in the course, determines assignments and tests through which the material will be mastered, grades the students, controls and regulates the flow of communication, decides who gets the opportunity to speak, when, and for how long, and decides the classroom rules (Blumberg, 2009; Weimer, 2002). Students have not been asked what they think or want, but must accept that educators design the course by themselves, using their knowledge and experience. As a result, education is structured into something done by the instructor for and over students (Manor et al., 2010; Shor, 1992, 1996).

The instructors' power to educate is not a negative. Professors, by definition, have much greater proficiency and knowledge in their discipline than students. Their power is important for a classroom and for student learning; they know what challenges students and what the practices are for quality work (Manor et al., 2010). However, most students come to see themselves as powerless in their own education and see professors as having a majority of responsibility to educate and to produce learning (Manor et al., 2010). Manor and his colleagues illustrate two problems that could occur when students perceive professors as having the majority of responsibility to educate. First, the assumption that

professors possess all the course-related knowledge and that students have none contributes to a misunderstanding that learning essentially is the transfer of knowledge from professor to students, rather than a process that allows making meaning from knowledge. Second, the students' perceived powerlessness in their own education translates into a lack of their taking responsibility for their own education (Manor et al., 2010).

Placing the responsibility for learning on the instructor, not students, could result in students' passivity and lack of interest (Jacob & Eleser, 1997). Jacob and Eleser (1997) argued that many college students are the product of an educational system that has historically placed the responsibility for learning on the instructor. Consequently, they expect to play the role of passive learners; they attend without presence and participate without contribution (Jacob & Eleser, 1997). Student passivity and lack of interest are the result of their lack of a sense of control over their learning. As Weimer (2002) explained, "students' motivation, confidence, and enthusiasm for learning are all adversely affected when teachers control the process through and by which they learn" (p. 23).

The instructor-centered pedagogy, in which the instructor is the primary decision maker and the sole deliverer of knowledge, makes students dependent learners. Shor (1992) argued that the instructor's unilateral authority in the classroom cultivates and maintains a culture of dependency on the instructor to tell students what to do, resulting in passive habits of following authority, waiting to be told what to do, and what things mean. As Weimer (2002) noted, "the more we decide for students, the more they expect us to decide. . . . The more responsibility for learning we try to assume, the less they accept on their own" (p. 98). They come to believe that their place in college and society is subordinate and they do not have the ability to think for themselves and make decisions (Shor, 1996). The product of this dependency on the instructor is "students who have little commitment to and almost no respect for learning and who cannot function without structure and imposed control" (Weimer, 2002, p. 98). Unfortunately, students are in real trouble when they cannot manage their own affairs, think independently, assume responsibilities, confront life's challenges, make decisions, and rely on themselves when circumstances are difficult.

A Learner-Centered Approach

Barr and Tagg (1995) asserted that higher education institutions need to emphasize a learning paradigm in order to succeed in the 21st century. They argued that the mission of a college should not be in merely delivering instruction; rather, the mission of a college should be in "producing learning with every student by whatever means work best" (Barr & Tagg, 1995, p. 13). In Barr and Tagg's (1995) view, educators would be much more effective if, instead of focusing on their teaching, they focused on how and what students were learning. In other words, educators need to adopt a learner-centered approach to teaching.

Learner-centered approaches emphasize the importance of creating learning opportunities that improve students' learning. Blumberg (2009), Kramer et al. (2007), and Weimer (2002) argued that learner-centered approaches focus on student learning and the learning process and on the extent to which learning is achieved. Doyle (2008) explained that learner-centered teaching means subjecting all teaching activities to the test of the question: "Given the context of my students, course, and classroom, will this teaching action optimize my students' opportunity to learn?" (p. 4). Indeed, in learner-centered teaching, attention is given not only to what the student is learning, but how the student is learning and whether the student is able to retain and apply this knowledge (Barr & Tagg, 1995; Weimer, 2002). Therefore, in learner-centered approaches, the emphasis shifts from what the instructor does to what the students do to learn, and the role of the instructor is shifted from a giver of information to a facilitator of student learning (Blumberg, 2009; Massouleh & Jooneghani, 2012; Weimer, 2002).

One feature of learner-centered teaching is what Weimer (2002) and Blumberg (2009) called "the balance of power" between instructors and students. When teaching is learner-centered, instructors do not make all or even most of decisions about learning for students. Rather, learner-centered instructors share the decision-making power with students (Blumberg, 2009; Massouleh & Jooneghani, 2012; Weimer, 2002). Learner-centered instructors involve students in making some decisions about all components in the learning process: the content of their courses (i.e., what they learn), the ways in which the course topics are learned (i.e., how they learn), the ways in which students' learning is evaluated; and classroom policies (Blumberg, 2009; Doyle, 2008; Massouleh & Jooneghani, 2012; Weimer, 2002; Yilmaz, 2009). However, involving students in the decision-making power does not mean power is transferred wholesale to students; instructors, rather, still make key decisions about learning, but they no longer make all decisions and not always without student input (Oyler, 1996; Massouleh & Jooneghani, 2012; Weimer, 2002). Learner-centered approaches emphasizing a balance of power so students are involved in the decision-making power shift the responsibility for learning from the instructor to both the instructor and the student (Barr & Tagg, 1995; Blumberg, 2009; Weimer, 2002).

Consequently, the learner-centered pedagogy removes students from their subordinate role in instructor-centered teaching, to a participatory role in a shared journey of learning, where both the instructor and students are responsible for learning.

Orienting subject matter to student needs and interests is another feature of learner-centered teaching (Cleveland-Innes & Emes, 2005; Massouleh & Jooneghani, 2012; McCombs, 2000; Ongeri, 2011; Shor, 1992). McCombs (2000) argued that "learner-centered is the perspective that couples a focus on individual learners (their heredity, experiences, perspectives, backgrounds, talents, interests, capacities, and needs) with a focus on learning" (p. 4). Therefore, as Auerbach (1992) asserted, "What is important to students is at the heart of the instructional process, the direction of which is from the students to the curriculum rather than from the curriculum to the students" (p. 18). The argument of orienting subject matter to students perceived needs and goals is based on the belief that people are motivated when they work on issues that are of interest to them (Cook, 1992; Ma & Gao, 2010; Ongeri, 2011; Shor, 1996). Therefore, learner-centered instructors consider students' needs and interests when choosing the course content.

As this review reveals, literature related to learner-centered approaches to teaching indicates the key features for producing a learner-centered environment include the balance of power between the instructor and students, involving students in decision-making about their learning, sharing the responsibility for learning between the instructor and students, and using students' needs and interests in the course content. In building a graduate educational technology course, the instructor considered these elements to consciously create a learner-centered environment with which to prepare students to be independent responsible learners. In the following, details associated with the structure of the graduate educational technology course and how it draws on the tenets of the learner-centered approach will be discussed.

Developing a Course Following the Learner-Centered Approach

In a graduate educational technology course at a college of education in the southwestern US, the instructor structured the course in a way that involved students in the decision-making power in four areas: course textbook decisions, course content decisions, classroom process and students' talk, and assignment decisions. The following describes how the decision-making power was shared between the instructor and students in an effort to give students more responsibility for their own learning.

Course Textbook Decisions

The instructor shared with the students the decision-making power for choosing the course textbooks. However, he limited the scope of their decisions because sometimes students do not have experience in or knowledge of the discipline to make a good textbook decision (Weimer, 2002). Following the Higher Education Act recommendations regarding course textbooks, the instructor assigned one required textbook and three recommended textbooks. The instructor asked all students to read a required textbook of his choice. Additionally, the instructor chose three textbooks and asked students to select one of them. Introductions and content tables of the three textbooks were scanned and posted in the course management system for students to review.

During the first class meeting, students were asked to read the scanned information and make decisions about which textbook they would prefer to read in the course. The instructor then asked students to explain which textbook each chose and why. Based on the discussion about each of the three recommended textbooks, each student made the final decision about the textbook he or she wanted to read in the course.

Course Content Decisions

When choosing the course content, the instructor tried to connect students' personal interests to the overall course goals. The instructor did not come to the first day of the class with a detailed syllabus with a detailed description of the topics and technology tools that students should study in the course. Instead, the instructor invited students to choose the topic and the technology tool they would want to learn from the four chosen textbooks. Once students chose the topic and the technology tool, they would be responsible for reading more about them. They would then create PowerPoint presentations explaining the important ideas of the reading, prepare an activity related to their topic and their technology tool, and lead class discussion about their topic and their technology tool. In doing so, students would take responsibility for making decisions about the topic and the technology tool they were interested in, make decisions whether they would like to choose these items from the recommended textbooks or from outside resources, and make decisions about the activity they would design to engage their classmates in the topic and the technology tool they selected.

Students were allowed to choose the day they wanted to present their topic and their educational technology tool for class discussion. The instructor made a blank table called "Tentative Schedule" and asked students to choose the day they preferred to present their topic and activity. This approach did result

in assignments (the presentation and the activity) being submitted at different dates, but this made the grading task easy because there was no imposing stack of assignments to be graded all at once. During the semester, a conflict happened in the class schedule. Two students were expected to collaboratively work on two self-selected topics and present these topics in two different class meetings. However, the students presented the two topics at the same time during one class meeting. The instructor did not simply hand over control of the schedule and revise it; instead he negotiated with students the conflict that happened in the schedule and asked them for their recommendation to revise it.

Students' Talk and Classroom Process

The class was run much like a discussion section. Every week, the instructor posted an article via the course management system. The instructor did not give lectures on topics that were explained in the text, but let students decide what content would get worked on during a class period. The instructor asked students to read the article content before they came to class. He asked students at the beginning of each class to determine what they were having trouble with, what was interesting, and what they wanted to talk about. In line with Shor's (1996) suggestion, the instructor controlled his "authoritative academic voice." The instructor said as little as necessary, so he could listen to as much student speaking as possible. During the class discussion, the instructor, as Shor (1992) suggested, offered questions, comments, structures, and academic knowledge while patiently listening to students' thoughts and ideas. Each student participated in the discussion, addressing the problems she or he was having with the topic, clarifying and explaining, or providing examples from his or her own experience. The instructor did not call on students to share their ideas and experiences; rather the discussion smoothly went from student to student without the instructor intervening in the student flow of speech.

Students assumed a large role in running the class with some facilitation from the instructor, thus much of the responsibility and power were shifted. Each week, one student led a presentation of a self-selected topic or a self-selected technology tool. Using this method, student responsibilities were clearly stated. These responsibilities included reading about the topic or the technology tool prior to class, taking complete responsibility for the class discussion, and teaching their classmates about their technology tool, with the instructor acting only as facilitator, when necessary. At times in students' presentations of their topics and their activities, the instructor became the learner and the students became the instructor, explaining, responding to classmates' questions, and asking questions to all class members including the instructor. When students had a question, they asked the presenting student, not the instructor. The instructor learned from the student, not just the student learned from the instructor (Freire, 1993). The instructor became the learner asking for the required directions for the activity, and asking about the amount of time required for the activity: "How much time do *we* have to work on this activity?". By using the pronoun "we," the instructor embodied what Freire (1993) describes as the horizontal relationship that should exist between teacher and students, an "A with B" relation where teacher and student learn from each other.

Assignment Decisions

Critical to the structure and process of a learner-centered approach is the notion of choice regarding learning (Cleveland-Innes & Emes, 2005; Weimer, 2002). In the graduate educational technology course, this was translated into choosing from different forms of assignments. As Weimer (2002) suggested, the most systematic way of balancing power is giving students power over the assignments needed to be completed in the course. The instructor gave his students power over the course final project by allowing them to decide the assignment they would complete. He structured the final project so that there was a multitude of choices to complete. In the final project, students were given the choice to conduct an interview, submit annotated bibliography, or submit a real lesson activity (see Appendix for more detail). Instead of leaving students on their own during the selection process, the instructor asked students to submit a proposal as a midterm assignment in which they were asked to identify the major steps necessary to complete the assignment they chose to work on. The instructor reviewed the students' proposals and gave them feedback and recommendations to start their projects. Each assignment in the final project was highly structured, and each had detailed descriptions of the assignment direction, the expectations for the students, and instructional support materials. As Weimer (2002) suggested, the key component of how to share power is the careful design of assignments that help students effectively use the power they are given. Each assignment is graded against specific criteria and has the same amount of points.

Students' Response to the Course Structure

Course Textbook Decisions

As Sutphin (1992) found, the experience of including students in choosing texts was highly

regarded by students. Students felt ownership of the course and responsibility to read the textbook of their choice. The most detailed and eloquent response represents many of the comments made by others:

> I like the way we did about choosing the textbook, that there are several textbooks to choose from, and we had the freedom to choose from these books. Especially in the graduate level, most students work as teachers, so they know where they want to go. This gave me ownership of the class and made me more responsible to read that book. But, there should be some structure in the classroom because students may choose the incorrect textbook for the class. I like the idea that there are three textbooks and you need to pick what works for you. This gives students the direction to focus on.

Involving students in making decisions about course texts gave students a sense of ownership and responsibility in the course. The students came to see the class as belonging to everyone; they came to see the class as theirs. This finding corresponds with Weimer (2002) and Bovill, Morss, and Bulley's (2008) assertion that involving students in the decision-making power affects students' sense of ownership of the course and responsibility for their own learning. However, students did not prefer having complete freedom in choosing textbooks. They perceived the importance of having input in choosing textbooks and the importance of the instructor recommended texts as well. This suggests the instructor should find a balance between assigning too much or too little responsibility to the students for choosing texts. Schwartz and Sadler (2007) argued that situations where students have too much responsibility or no responsibility at all are less supportive to learning.

Course Content Decisions

In choosing the topic and technology tool that each student was interested in learning in the course, students responded differently to that kind of sharing of the decision-making power. Some students struggled to decide what they wanted to learn in the course because of their lack of background knowledge about technology. Other students had enough sufficient background knowledge to enable them to decide the topic and the tool they wanted to learn in the course. As Weimer (2002) suggested, a learner-centered instructor plays the role of a facilitator who provides the kind of direction and leadership students need in order to take what students know to the next level. To help them discover the topic that could serve their interests, the instructor, as facilitator, engaged students in individual discussions as they struggled to decide the topic they wanted to learn in the course. Collison, Elbaum, Haavind, and Tinker (2000) pointed out,

> There is strong evidence to suggest that learners learn best when constructing their own knowledge. However, there is also a right time to clearly guide learners or simply give them a critical piece of information to help them move forward. (p. 97)

Some students developed the awareness necessary to function as independent responsible learners. They took the responsibility to come to class with an understanding of their self-selected topic, be experts about their technology tool, and take complete responsibility for the class discussion. For example, some students prepared innovative activities to engage their classmates during the class discussion. Other students provided their classmates with well-written papers explaining how to use their technology tool. Other students searched for websites about their topic and provided their classmates with these websites as resources for their future use. The students assumed the responsibility for teaching their classmates about their topic and the technology tool of their choice; they explained to their classmates how to use the tool and professionally responded to their questions. Students' feeling of having a voice in choosing course topics gave them a sense of ownership and responsibility for their learning, which motivated them to do creative work. One student explained,

> I have input in deciding which topic I want to do. I like that because it let me have a lot of ownership of the class, a lot of responsibility to do the work and do the work well. Giving the ownership of the topic motivated me to do a good job and be creative.

Students' recognition that they had input in course content gave them an increased sense of ownership and responsibility for their own learning—a recognition that motivated them to do a good job and be creative. When students were included in making decisions about course content, they owned the work they did, they knew the why, what, how, and for whom of their work, so they committed to do the work as best as they could (Cook, 1992). Including students in making decisions about course content inspired students to take more responsibility for their choice, which inspired them to be creative. Shor (1996) explained, "when you have intentions, power, responsibilities, and purposes, you are more connected to what you do and focus more intelligence on your experience" (p. 75-76).

Students' Talk and Classroom Process

Through class observation and students' interviews, it was clear that students' learning was enhanced. It was noticed that students were motivated to spend a great amount of time and effort in preparing the presentation of their topics and hands-on activities. It is known from studies that time on task results in more learning (Weimer, 2002), and that learning is mainly achieved through persistent effort and can only come from the heart of the individual learner (Blumberg, 2009). Allowing students to choose the topic and technology tool and then teach their classmates what they learned produced active learning. Cook (1992) argued that students' active involvement in classroom decision-making and in the enactment of the decisions result in more effective learning than does the passivity that attends the performance of a teacher's imposed pedagogical pattern. One student noted,

> I learned a lot because I chose the topic and then presented it to my class. I think by doing that, me, the student, has to put more effort in it, I have to because when the professor is in front of you and just talking, you can just take notes and you are kind of passive, passive learner. But here it makes me an active learner because you have to know what you are talking about if you are talking in the front of your classmate and your professor.

Assignment Decisions

As Weimer (2002) and Blumberg (2009) suggested, assignment decision-making had a significant impact on how hard students were willing to work. The students did a great job in the final project; each chose the option that met his or her needs and/or strengths. Some students did a great job creating interview questions and writing a reflection highlighting the practices of the teacher they interviewed, and connecting the findings to the readings they had done in the course. Other students did a great job creating a lesson plan for an educational technology tool of their choice. As Weimer (2002) and Cleveland-Innes and Emes (2005) noted, students' recognition that they had a choice motivated them to do extremely well in doing the assignment. One student noted,

> Giving the option allows us to focus our work in the area we feel we are very comfortable in or very knowledgeable. I got to choose it because it is something I am interested in. The more interested I am, the more effort I will put in my work, not for the grade, but because it is something I believe in.

Concluding Reflections, Implications, and Ideas for Future Research

These reflections about the structure of a graduate educational technology course that draws on learner-centered principles imply that, as Brookfield (1995, 2005) reminds us, we, as educators, need to engage in a critical reflection to understand the dynamics of power in the classroom and to uncover the hegemonies that drive our practices. Weimer (2002) argued that to become "truly learner-centered, we must begin with greater insight into the role of power in our classrooms: who exerts it, why, and with what effects and what benefits" (p. 28). Importantly, if we want to encourage students to take responsibility for their own learning, we need to invite students to have more power over that learning. Manor et al. (2010) argued that there is a strong relationship between power and responsibility: "Greater power means a greater ability to act and thus a greater sense of responsibility to do so. Similarly, less power (or worse, powerlessness) equates to less ability to act and less responsibility" (p. 10). This correlation between power and responsibility suggests the necessity for higher education courses to embody mutual authority between instructors and students. Or, to put it another way, power and responsibility should be shared between instructors and students; together negotiate and decide aspects of the course and the responsibility for them.

This work has implications for how graduate education courses can be structured in a way that contextualizes course content in terms of student-determined interests and goals. Graduate students as adult learners seek education that relates or applies to their perceived needs (Aurebach, 1992). Graduate students have years of experience and a wealth of knowledge, so they know what they want to learn. They need instructors as facilitators who guide them toward their goals without telling them what to do. One graduate student in the educational technology course noted,

> By reaching graduate school, I think students have a good idea about what they want to do, especially [because] most graduate students are actively working teachers. Guide me in this way, do not tell me what I have to do, but give me a guide, assist me to reach my goals, but not to tell me do this or that.

Involving students in making decisions about course content is an especially challenging concept. As Weimer (2002) noted, the difference between what faculty and students know about the content is so dramatic and compelling that it seems irresponsible to give students any voice in course content. However,

involving graduate students in choosing topics and technology tools cultivated students' sense of ownership of the work they did and responsibility toward it. Their sense of ownership and responsibility for their work motivated them to be creative producers. Additionally, involving students in making decisions about course content offered students meaningful learning where the topics were relevant to their needs. Even though instructors may have difficulties giving students control over content, instructors using this model have possibilities for learning from their students and improving their pedagogy through sharing students' ideas and previous experiences.

This work provides valuable insight into how to structure graduate level courses to promote students' growth and movement toward taking responsibility for their learning. As Ma and Gao (2010), Bovill, Morss, and Bulley (2008), Weimer (2002), and Shor (1996) suggested, involving students in decision-making inspired students to experience an increased sense of responsibility. Particularly, the results of this work indicate that involving graduate students in making decisions about course texts, content, classroom process, and assignments motivated them to take the responsibility for their own learning and gave them a sense of ownership of the class. Their sense of ownership and responsibility toward what they chose to do motivated them to do the work as best as they could. Faculty can apply the methodology from this report to small or medium graduate level courses across disciplines. Future work needs to focus on the possibility of involving students in the decision-making power in large undergraduate level classes.

As educators continue developing courses that draw on the principles of the learner-centered approach, it is of central importance to also examine the ways in which students can contribute to the design of course curricula. In terms of future research, professors might not only continue to involve students in content decision-making and assignment decision-making, but also include students in co-designing a course curriculum, including its creation and delivery. This approach of including students in co-designing a curriculum might empower students to be independent learners able to take more responsibility for their own learning.

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MARIAM ABDELMALAK is an assistant professor at the New Valley College of Education, Assiut University, Egypt. Her research interests include curriculum design, democratic education, student voice, and curriculum based technology integration.

JESUS TRESPALACIOS is an adjunct professor in the Department of Curriculum and Instruction at New Mexico State University. His research interests include technology integration in the mathematics classrooms at K-8 level and teacher education.

Appendix
EDLT 573: Final project

Please select one from the following assignments:

Interviews (30 minutes)

Description:

A student will interview ONE K-12 in-service teachers about his/her ideas / approaches regarding critical thinking and whether he/she uses technology to foster critical thinking. For the proposal you will submit interview questions and the teacher's profile that you want to interview including grade level, content, etc. And for the final project you will submit interview questions, typed interview notes, a reflection that captures the meaning of the experience. This reflection should contain:

1. Write a reflection paper (8-10 pages)
2. An individual profile that highlights the most important aspects of this teacher's vision and practice(s) when it comes to critical thinking,
3. Examples of his/her practice,
4. A discussion of this teacher that connects the findings / examples / strategies *to the readings you have done*.
5. This must be written in APA format.
6. Students make 15-minute presentation about his/her work.

Annotated Bibliography

In relation to technology and critical thinking research and your individual line of study or inquiry/research, you will submit a self-generated list of references. This list should include at least of 15 references from the following sources:

- At least 1 book—not older than ten years, and
- Recent work that might help you grasp issues central to your study or inquiry focus (at least 14 articles). Make sure to include articles from 1-2 major peer reviewed journals that inform your focus directly and/or are in your field of study. I highly recommend that you do an early search of the journals available electronically via the library system. Include in your search at least TWO journals with technology focus such as International Society for Technology in Education (ISTE) (www.iste.org), Research in Learning Technology (http://www.researchinlearningtechnology.net/index.php/rlt

For the proposal you will submit the main topic you want to search about it. Provide at least
2 references that you would like to include in your annotated bibliography. For the final project you will submit a document with an annotated bibliography on EACH of the references summarizing the study and including what you find interesting or compelling (at least 200 words for each reference). Students make 15-minute presentation summarizing his/her findings.

Real Lesson Activity

Students will design and develop a lesson activity where they include the use of an educational technology that fosters critical thinking in the students. For the proposal, you will submit the educational goal of your lesson, the educational tool that you want to use in your lesson, and a description of how your lesson fosters students' critical thinking. For the final project you will develop your lesson having your classmates as your students, and submit a lesson plan.

The lesson activity should be between 30-40 minutes long.