For this discussion, please read:

Jansuszewski & Molenda, chapter 1, "Definition"; chapter 10, "A History of the AECT's Definitions of Educational Technology, by Januszewski and Persichitte"; chapter 12, "Implications for Academic Programs," by Persichitte; and Afterword, by Januszewski Saettler, chapter 1, "The Meaning of Educational Technology"

Then, address the following:

How does AECT's definition of educational technology compare with your own, personal definition or understanding of the field? What's similar? What's different? Anything surprising? And how do these definitions compare with the popular (layman's) definition or understanding of the field?

The Association for Educational Communications and Technology (AECT) defines educational technology as: "the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning" (Association for Educational Communications and Technology, 2001). Working in the educational technology field, my definition of the educational technology is very similar to AECT's definition. In my current position as a Communications Technician I am constantly working with educators and facilitators on different projects that enable me to assist them in designing and developing learning along with selecting appropriate technological processes and resources to improve performance of staff. Our department is continuously trying to ensure the best method for learning and knowledge transfer is implemented into our courses and trainings. Instead of this definition being surprising it's affirming that we are doing a good job in implementing proper practice of the field.

My experience with the popular understanding of "educational technology" and its definition is that it is not as in-depth, nor does it encompass all aspects of AECT's definition. It seems to consist of the practice of technology and using it for learning, but doesn't necessarily include the managing or evaluation processes. The definitions I've seen are pretty broad and are a generalized concept of "technology "without a true way of demonstrating any results or improvement in learning of any kind.

References

Januszewski, A., & Molenda, M. (2008). *Educational Technology: A definition with commentary*. York, NY: Routledge.

Association for Educational Communications and Technology. (2001). What is the knowledge base? Retrieved 01/17/12 from http://www.aect.org/standards/knowledgebase.html

For this discussion, please read the following:

Saettler, chapter 2, "Early Forerunners: Before 1900"; chapter 3: "Beginnings of a Science and Technology of Instruction"
Spector, Merrill, van Merrienboer, & Driscoll, chapter 1, "Historical Foundations," by Molenda

Then, address the following:

1. As you read Saettler's review of educational approaches, from the Sophists in the fifth century B.C., to Pestalozzi in the late 18th century, to Dewey in the early 20th century, which elements did you identify as being present in your own education? Which of them were/are effective, and which of them were/are best abandoned? Why? Please be sure to address your experiences at multiple stages of your educational career--including grad school.

2. In his brief chapter, Molenda does a pretty good job of tracing the history of the field of instructional technology and describing its scope. Briefly discuss two things that you found especially interesting in this chapter.

While these questions do ask you to offer reflections and express an opinion, your answers should reflect (and refer to) points made in the assigned readings--and in any additional resources you judge germane to this discussion. By the way, if you do use sources other than those assigned, please cite them in APA style.

> As I read Saettler's review of educational approaches, I could identify several elements being present in my own education. Three methods that I think are effective and see being used in various stages of my education are the Comenius, Pestalozziian, and the Kilpatric methods. Even though the Sophist theory is commonly used in college during your lower level classes, I feel that it is not the most effective method. Just being lectured now and days doesn't cut it, we need more than rhetoric to support transfer of knowledge in today's fast pace educational and work enviroment. From grade school through grad school visual aids and sympathetic teachers have helped capture my attention and helped me grasp a better understanding of various lessons and have demonstrated the validity of Comenius' method to me. Similarly, the Pestalozziian method has been present and effective from lessons learned in college, to my current position, and now in grad school. Being able to see the effects of instruction when students are able to observe and learn from a competent teacher reinforces the value of the Pestalozzian method. It has also shown the soundness of this method to students like me who are motivated to learn by being respected for our individuality and have mutual cooperation. Kilpatric's method is the one method I consistently use as an instructor continuously looking to improve class lesson and also as part of a high performing team. We are taught in my department to be critical thinkers that

come up with solutions and to constantly improve processes through lessons learned and application.

Two things that I find interesting in Molenda's description, scope, and history of the field of instructional technology are:

· How visual media evolved from images, radio, to television to computers

· How a new paradigm began with"constructivism"

These two points were interesting because they caused major changes in the history of instructional technology that drastically shifted the original paradigms.They also show us how the field is continously evolving and how change and advancement in inevitable. This field continues to evolve and grow as the media progresses and the paradigm shifts.

References

Molenda, M. (2008). Historical foundations. In A. Januszewski & M. Molenda (Eds.), *Educational technology: A definition with commentary.* (1-14). New York: Routledge.

Saettler, P. (2004). *The evolution of American educational technology.* Greenwich, CT: Information Age.

For this discussion, please read:

Januszewski & Molenda, chapter 2, "Facilitating Learning," by Robinson, Molenda, and Rezabek
Saettler, chapter 10: "Behaviorism and Educational Technology: 1950-1980"; chapter 11, Cognitive
Science and Educational Technology, 1950-1980."
Spector, Merrill, van Merrienboer, & Driscoll, chapter 7, "Philosophical Perspectives," by Schuh and
Barab.

Additional (optional) resources: Jonassen, chapter 1: "Behaviorism and Instructional Technology," by
Burton, Moore, and Magliaro; and chapter 1, "Cognitive Perspectives in Psychology," by Winn.

Then, address the following:

1. What are the benefits of the behaviorist approach? What are the shortcomings?
The benefits of the behaviorist approach are its contribution to research and current practice in
educational technology (Burton, Moore, & Magliaro, 2004). This approach highlights how one learns
through experiences, engaging in trial and error, and conditioned reflexes demonstrating some of the main
components of the major assumptions in the behaviorist approach. Its shortcomings include, but are not
limited to the lack of fundamental motives and critical thinking skills.

**2. Which aspects of behaviorism were/are present in your own education (all levels), and which
have/do you employ in your own teaching?** Being a kinesthetic learner I learn by doing. When teaching
new software to staff, I also implement a hands on approach. Through experience and repetition
behaviorism has been present in some way in all levels of my education; through repetition and constant
engagement in school.

**3. Which aspects of cognitive science were/are present in your own education, and which have/do
you employ in your own teaching?** Cognitive science is present in my education through the use of the
computer for research and other methods such as flashcards to memorize and improve comprehension. In
my teaching I mainly use the behavioral approach, but do offer some cognitive science by referring my
students to manuals and the web to research best practices and to use as a reference in learning how to use
the software.

4**. What are the benefits of the cognitivist approach? What are the shortcomings?** The benefit of the
cognitivist approach is that it develops the learners' critical thinking skills enabling them to find solutions
to problems that exist. It is also a benefit because it increases the learner's ability to comprehend,
memorize and retrieve information. Its shortcoming is that "this view reflects the analogy that our brain
works in the same way as a computer" (Winn, 2004, p. 79). As human being we are not like a computer
there are more factors and behaviors that need to be thought of when learning is concerned.

References

Burton, J. K., Moore, D. M. & Magliaro, S. G. (2004). Behaviorism and instructional technology. In D. H. Jonassen (Ed.), *Handbook of research on educational communications and technology* (2nd ed.). (pp. 3-36). Mahwah, NJ: Erlbaum.

Winn, W. (2004). Cognitive perspectives in psychology. In D. H. Jonassen (Ed.), *Handbook of research on educational communications and technology* (2nd ed.). (pp. 74-112). Mahwah, NJ: Erlbaum.

D4

For this discussion, please read the following four articles, which are available from NSU's electronic library:

Carole Funk, "James Otto and the Pi Man," *Phi Delta Kappan*, November 2003

J. Wesley Null, "Is Constructivism Traditional?" *The Educational Forum*, Winter 2004

Thomas M. Sherman & Barbara L. Kurshan, "Constructing Learning," *Learning and Leading with Technology*, February 2005

Paul A. Kirschner, John Sweller, and Richard E. Clark, (2006), "Why Minimal Guidance During Instruction Does Not Work," *Educational Psychologist, 41*(2), 75-86. http://www.cogtech.usc.edu/publications/kirschner_Sweller_Clark.pdf

Then, address the following:

1. Which aspects of constructivism were/are present in your own education, and which do you employ in your own teaching?

Constructivism is based on building our understanding from our experiences and prior knowledge (Sherman & Kurshan, 2005). Several characteristics of the constructivist principle have been and currently are present in my education. Sherman & Kurshan (2005) lists eight teaching characteristics and I can identify many of them in my own education and teaching. I remember experiencing learner-centered classrooms when I was in middle school and had to read the local newspaper to know what was going on in the community and learn about politics. These activities taught me not only about how to find and examine information, but gave me an understanding of what was going on in my community. Recently, I attempted to take some classes at a local community college that I was interested in and found the learning to be so much more enjoyable and caught myself quickly learning concepts and understanding how to create a website. I enjoy working with teaching technology because most of my learners are interested in the learning the software for their job and are eager to learn. With the availability of the technology in our work environment I am also able to incorporate real life scenarios to fully engage my learners in learning something they are interested in and apply the context to scenarios that will allow them to transfer their experience back to the job. I think our ITDE program focuses a lot on the social characteristic of constructivism through discussion posts allowing us students to interact with one another while discussing, sharing and assessing each other's ideas and understanding. I also try to incorporate collaboration in the workplace where leaders can share and learn from one another through a social media medium. Feedback and support characteristics are currently present in my work and education when creating online modules and evaluations for our employees. We incorporate these methods in order to help them achieve different competencies and help them develop their understanding through our blended programs where they can select the learning activities they are interested in. I truly appreciate it when a teacher gives me feedback on my work and currently in the ITDE program I can see a difference in my interest, frustration and ability to build from one project to the next when I do receive feedback and when I don't receive feedback from the instructor. I agree when Sherman

& Kurshan state that creating these environments van be challenging, but as we see it can be done and with careful planning it can be very successful and helpful for the learner.

2. What are the benefits of constructivism? What are the shortcomings?

The benefit of constructivism is that it teaches the learner how to learn and gives them the tools to learn and gain understanding in any situation. This is clearly seen in James Otto's learning experience with understanding his first mathematical concept (Funk, 2003). In the workplace, constructivist learning is vital especially since the organizational structure continues to move from hierarchical to lateral and as technology evolves at a rapid pace; employees need to know how to learn new things on a consistent basis without clear instruction. I see this in my own work environment where I am left to learn how to use new material and software on my own without guidance. Luckily constructivism has been present in my life and has given me the tools to be self-sufficient and build upon the knowledge and experiences I have.

The shortcomings of constructivism are that not every situations calls for one to learn through discovery and it takes a lot of time and planning for a teacher to create that kind of learning environment. Kirschner, Sweller, & Clark (2010) point out a challenge in the constructivist approach to learning in that they do not see it increasing learner's long term memory only the working memory. In the article they point out that without increasing long term memory we largely become incapable of doing simple acts. We can also see that the working memory is limited in duration and capability, demonstrating the importance of information being processed and not only stored in our long-term memory. Current research support the shortcoming of constructivism that students can end up being lost, frustrated and confused with this method.

References

Funk, C. (2003). James Otto and the Pi Man: A Constructivist Tale. *Phi Delta Kappan* 85(3). Retrieved from http://go.galegroup.com.ezproxylocal.library.nova.edu/ps/i.do?id=GALE%7CA10986828 2&v=2.1&u=novaseu_main&it=r&p=GPS&sw=w

Kirschner, P. A., Sweller, J., and Clark, R. E. (2006), "Why Minimal Guidance During Instruction Does Not Work," *Educational Psychologist, 41*(2), 75-86. Retrieved from http://www.cogtech.usc.edu/publications/kirschner_Sweller_Clark.pdf

Sherman, T. M., and Kurshan, B. L. (2005). Constructing learning: using technology to support teaching for understanding. *Learning and Leading with Technology*. Retrieved from http://go.galegroup.com.ezproxylocal.library.nova.edu/ps/i.do?id=GALE%7CA128704106&v=2.1&u =novaseu_main&it=r&p=GPS&sw=w

For this discussion, read ONE of the eight chapters from Part II: Hard Technologies, in the Jonassen *Handbook*.

Then, identify and discuss three items (facts, observations, etc.) drawn from this chapter that you found especially interesting. How could you apply this information in your own workplace or to your own research?

Working in a department that that has transitioned from face-to-face learning to internet based and blended learning, I found uncovering challenges and opportunities of teaching and the internet interesting. In regards to professional development, Hill, Wiley, Nelson & Han (2008) state findings that instructors exposed to these development courses significantly change their attitudes and are more willing to use online instruction is very useful information (p. 441). It makes me aware on the importance of educating our instructors and instructional designer in order to aid them in the transition to online learning and teaching. I currently teach instructional designers and subject matter experts on how to use software to create online learning and think it would be great to add some more training to help them feel comfortable and effective internet-based instructors.

Learning from and with the internet from a learners perspective made me think about my experience as a constructivist learner. Finally, Hill et al. (2008) point out how learning with the internet orients us from "passive learning to active creation" (p.443). I see this application in my learning and teaching in the workplace by not only taking in information, but contributing to the learning process. An example of this would be the use of our internal social network, where I had to learn how to use it, teach our staff how to use is and now actively participate in contributing artifacts for our learners and continue to learn from their input.

Hill et al. (2008) states that "the social construction of knowledge enables a deeper level of processing and understanding than could occur on an individual level" (p.450). This concept puts value in learner to learner interaction. Our current goal with our internal social media is for our learners to collaborate and learn from each other. The internet allows them to engage in dynamic discussions and our social network provides our learners with a common tool to facilitate learning from their peers.

Reference

Hill, J. R., Wiley, D., Nelson, L. M. & Han, S. (2008) Exploring research on Internet-based learning: From infrastructure to interactions. In A. Januszewski & M. Molenda (Eds.), Educational technology: A definition with commentary. (433-460). New York: Routledge.

For this discussion, read ONE of the four chapters from Part III: Soft Technologies, in the Jonassen *Handbook*.

Then, identify and discuss three items (facts, observations, etc.) drawn from this chapter that you found especially interesting. How could you apply this information in your own workplace and/or in your own research?

Working as a media specialist in training and development I am always looking for ways to improve learning and take it to another level. I found chapter 21, *Games, Simulations and their relationships to learning*, by Margaret Gredler very informative and enlightening. Case studies are currently used in our trainings and the idea of creating simulations has been discussed. One point that really stood out to me was when Gredler (2004) states that: "Solving a well-defined problem is not a simulation for the student. In other words, like the real world, a simulation is an ill-defined problem with several parameters and possible courses of action." (p. 572) I will be able to analyze the simulation we are trying to create with the characteristics described by Gredler and ensure it has several factors and possible solutions.

Another interesting fact that I found particularly interesting is how "simulations require participants to apply their cognitive and metacognitive capabilities in the execution of a particular role." (Gredler, 2008, p. 573) Working with adults and leaders in our institution fosters a need for a great learning environment that can help our participants think at a higher level and lead the organization to success. Simulations would allow us to aid in our leaders by letting them see first-hand the possible impact of their decisions and give them perspective and feedback on how to handle complex situations.

Lastly, I found that even though simulations are time consuming, according to Gredler "they bridge the gap between the classroom and the real world by providing experience with complex, evolving problems."(p. 573) I think it would be great to provide our learners with that kind of classroom experience and feel that it could really have a great impact on our learners. Hopefully, in the near future I will be able to create a simulation that can give our learners the experience and cognitive practice that they need to be able to assimilate in their job.

Reference

Gredler, M. E., (2008) Games and simulations and their relationships to learning. In A. Januszewski & M. Molenda (Eds.), *Educational technology: A definition with commentary.* (571-581). New York: Routledge.

For this discussion, please read:

Januszewski & Molenda, chapter 4, "Creating," by Molenda and Boling
Saettler, chapter 12, "Development of Instructional Design"
as an introduction, and other readings as required (see below).

Then, select one of these four models of instructional design:

- Dick & Carey Model. The leading model in the field of instructional technology, and the model used in the ITDE instructional design and development courses. Generally behaviorist in its orientation.

- Smith & Ragan Model. Popular in part because of its cognitive science perspective.

- Interservices Procedures for Instructional Systems Development (IPISD) Model. Designed by (but not limited to use by) the military services.

- Kemp, Morrison, & Ross Model. Emphasizes curriculum planning. As Gustafson and Branch (1997) have noted, it "places greater emphasis on both formative and summative evaluation as ongoing processes, and places all activities within the context of goals, priorities, and constraints."

And address the following questions about that model:
Dick & Carey Model. The leading model in the field of instructional technology, and the model used in the ITDE instructional design and development courses. Generally behaviorist in its orientation.

1. What are its major elements?

There are ten major components in the Dick & Carey's system's approach model (2005). Here they are as follows:

- *Identify Instructional Goal(s):* Create a goal statement that describes what a learner will be able to do by the end of lesson.
- *Conduct Instructional Analysis*: Determine entry behaviors required, identify steps required to perform goal.
- *Analyze Learners and Contexts:* Determine learner skills, the skills they will learn and how they will use them.

- *Write Performance Objectives:* Describes the criteria that will be used to determine the learner's successful performance of task/goal with identified skills.
- *Develop Assessment Instruments*: Measuring learner's ability to perform objectives as well as assessing skills used.
- *Develop Instructional Strategy:* Create an environment that fosters learning that include: pre-instructional activities, content presentation, learner participation, assessment, and follow-through activities.
- *Develop and Select Instructional Materials:* Create and gather materials such as guides, presentation, etc. needed for lesson.
- *Design and Conduct Formative Evaluation of Instruction:* Collect data for possible improvement of instruction. Select one of three types of evaluation: *one-to one, small group, and field trial.*
- *Revise Instruction:* Incorporate improvements into instruction through revisions made after review of feedback.
- *Design and Conduct Summative Evaluation:* Overall evaluation of instruction that usually does not involve designer.

2. What are its theoretical or philosophical foundations?

Three theoretical positions in Dick and Carey's model are the: behaviorist, cognitivist, and constructivist approach. These three theoretical foundations are the basis for designing and implementing instruction military (Dick, Carey and Carey, 2009, p.3-4).

3. How (and by whom) is it most commonly used?

The Dick and Carey model is most commonly used by instructional designers, instructors interested in teaching high level competencies and the military (Dick, Carey and Carey, 2009, p.9).

4. What are its strengths?

There are three characteristics of the Dick and Carey model that demonstrates its major strengths and effectiveness. The first is how the model focuses "on what learners are to know or be able to do when the instruction is concluded" (Dick, Carey and Carey, 2009, p.8). The second is how it demonstrates the "relationship between the instructional strategy and the desired learning outcomes" (p.8). The third is how the model is reusable with its "empirical and replicable processes" (p.9).

5. What are its weaknesses?

The Dick and Carey model can be seen as too focused on specifics and too linear, but this "approach is valuable to instructors who are interested in successfully teaching basic and higher level competencies to learners"(p.9).

6. How would you apply the model in your instructional setting?

We currently apply this model in our instructional setting when creating courses that help our leaders achieve various competencies. In order to do this we apply the Dick & Carey's system's approach model from the beginning of the course creation. This model is clear and gives our instructional designer a guideline on how to create good instructional materials. The evaluation and assessment piece has helped us continuously improve our instructional materials and has enabled us to gauge successful mastery of competencies by our learners.

References

Dick, W., Carey, L., & Carey, J. O. (2011). *The systematic design of instruction* (7th ed.). New York, NY: Allyn & Bacon.

To answer these questions, you will need to investigate sources beyond this semester's textbooks. The Web is a wonderful (and often quick) source of information. Other helpful resources include:

Dick, W., Carey, L., & Carey, J. O. (2011). *The systematic design of instruction* (7th ed.). New York, NY: Allyn & Bacon.

Evans, A. D., & Lockee, B. B. (2008). At a distance: An instructional design framework for distance education. *Distance Learning, 5*(3), 11-16.

Gustafson, K. L., & Branch, R. M. (1997). *Survey of instructional development models*. Syracuse, NY: ERIC Clearinghouse on Information and Technology.

Morrison, G. R., Ross, S. M, & Kemp, J. E. (2010). *Designing effective instruction* (6th ed.). New York, NY: Wiley.

Smith, P. L., & Ragan, T. J. (2005). *Instructional design* (3rd ed.). New York, NY: Wiley.

Edmonds, G. S., Branch, R. C., & Mukherjee, P. (1994). A Conceptual Framework for Comparing Instructional Design Models, *Educational Technology Research and Development, 42*(4), 55-72. [1994]
http://www.jstor.org.ezproxylocal.library.nova.edu/stable/30220096

For this discussion, read:

Spector, chapter 54, "Research Designs," by Ross, Morrison, Hannafin, Young, Akker, Kuiper, Richey, and Klein

Additional resources: Jonassen, chapters 38 and 39 (excellent)

Then, address the following:

This chapter is divided into four sections. Discuss one item *from each section* that you found especially interesting and/or useful. How could you apply this information in your own research?

Working in training and development a few of these designs and methodological approaches can be applicable in the workplace and would be interesting to utilize some of these findings to enhance future research. I found Ross and Morrison's description of research methods used to investigate micro and macro instructional strategies and message design strategies was very interesting. Out of the three different focuses, the design strategy stood out to me the most as it relates a lot to my current position. As a communications specialist that helps our designers create visuals for their training and material, I found it very informative to see some of the research results that showed the importance of color, integrated design and legibility. I could apply these three research methods to my research by determining how these three approaches impact learning with social media.

The thought of educational technologies as the "conveyor" or as "Clark (1983) termed learning *with* media" (Hannafin, R. & Young, M., p.731) quickly drew my attention. During these last two semesters we've continually heard this term and being able to see some research demonstrating the use of educational technologies as a medium of instructional treatment was interesting. I can use this in my research to demonstrate how utilizing the medium of social media is another avenue for learners to access knowledge, yet point out that this medium is only as useful as the amount of work the educator and learner puts in.

Incorporating multiple components to improve instructional design is something that stood out to me. Working in a department that focuses on the training and development of our employees with a desire to show statistics of improvement, I can validate the importance of productive instructional design models that can address desired learning outcomes for educators who use the training material and learners. This information can be very useful for my research in giving me a section where I could research the benefits and outcomes of incorporating multiple components that would create a more productive instructional design model.

The workplace setting being a major source of research for design and development was something I could easily identify with. The example of the study that involved the design and usability of the university site is something that I deal with on a daily basis as a communications specialist and web developer for my department. I found it very useful to be able to tie that example among others to the instructional design process and the importance of being able to identify design and development problems. I would be able to apply this information to my research by verifying different methods of design process and strategies have been successfully implemented in my topic.

For this discussion, read:

Spector, chapter 55, "Data Collection and Analysis in Instructional Technology," by van Gog, Paas, et al.

Then, address the following:

This chapter is divided into four sections. Discuss one item *from each section* that you found especially interesting and/or useful. How could you apply this information in your own research?

1. Assessment of Individual Learning Processes

   I found the selection of tests information very useful especially when it came to a researcher selecting a

2. Assessment of Group Learning Processes

3. Assessment of Complex Performance

4. Setting Up a Laboratory for Measurement of Complex Performances

Reference

Van Gog, T., Paas, F., Johnson, T. E., O'Connor, D. L., Duley, A. R., Ward, P., Hancock, P. A., (2008). Data collection and analysis. In J. M. Spector, M. D. Merrill, J. V. Marrienboer, & M. P. Driscoll (Eds.) *Handbook of research on educational communications and technology* (3rd ed.) (pp. 763-806). New York, NY: Routledge.

D10

For this discussion, read:

Spector chapter 56, "Foundations for the Future," by Kim, Lee, Merrill, Spector, and van Merrienboer

Then, address the following:

In this chapter, the authors look back five years and forward five years (from the publication date--2008) in terms of developments in the field and research findings. The also examine foundation for research and development, the study of instructional design, and preparing practitioners and researchers. All this should be of great interest to doctoral students in the field. Describe how developments of the recent past and the projected future may influence your academic career and professional practice. Are you encouraged...or a little discouraged? Why?

The development in the recent past and projected future seems very promising for my professional career. Working in the Instructional Technology & Education field for the past 8 years, I can attest to some of the research made by the authors such as technology integration, informal and professional learning that continues to be important and an increasing demand in the workplace. In the past five years, I have seen our department transition from having only live training to blended, online and live web training. I have seen a culture change in the workplace and an educational move towards progress and technology integration for educating faculty and staff. I am also encouraged with this field by knowing there are communities for instructional technology & education and how ongoing collaboration is highly encouraged. This article reinforces the changes that will continue to happen and encourages me to continue being flexible and open to change and progression. An important statement that I found was "The willingness to be wrong and explore alternatives is an important piece of foundation"(Kim, et.al, 2008, p.811). I believe that in my current position and in any position we need to be flexible when it comes to change, technology and/or anything new. Without the willingness to try and explore we would not have innovation or improvement. Being able to explore, enable us to discover new things and have limitless possibilities.

Kim, C., Lee, J., Merrill, M.D., Spector, J. M., van Merrienboer, J.J., (2008). Foundations for the future. In J. M. Spector, M. D. Merrill, J. V. Marrienboer, & M. P. Driscoll (Eds.) *Handbook of research on educational communications and technology* (3rd ed.) (pp. 807-815). New York, NY: Routledge