Instructional Technology Foundations and Theories of Learning
EDIT 704 - 3 credits, George Mason University, Spring 2003, Course Syllabus

WebCT access is at http://webct.gmu.edu
E-reserves access is at http://library.gmu.edu/ click on e-reserves
Password is popcorn

Information

Time: Mondays, 4:30 PM - 7:10 PM
Location: Commerce II 100
Instructor: Dr. Janeula M. Burt, *Adjunct Professor*
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Objective

To understand the foundations and evolution of the field of Instructional Technology by investigating the cognitive processes underlying learning behavior and the relation of these processes to *Instructional Design*. These processes are implied in such phrases as behavior management, information processing, cognitive assessment, meaningful learning, schema theory, situated learning, motivation theory, constructivism, social negotiation, distributed learning, and so on.

Application

This course deals with the psychological foundations of learning and cognition (i.e. thought processes and thinking). It begins with an overview of learning theory and its relationship to instruction in general and to *Instructional Technology* in particular. It then examines behaviorist principles of learning where learners are thought of as reactive agents in the learning process and where the learning outcome is accomplished through behavior shaping strategies such as extrinsic reinforcement and drill and practice. Next, the course examines cognitivist principles of learning where learners are perceived as proactive agents in the learning process. Learning outcomes in this case are accomplished as a result of mental events or processes that transform instructional content to usable knowledge. Finally, the course examines constructivist principles of learning where learners are perceived as active agents in the learning process but the cognitive dimension takes the perspective that students construct their own learning by taking ownership of the learning process and becoming self-directed and self-regulated learners. Constructivism takes the view that learning is a function of the content, the context, the activity of the learner, and, perhaps most importantly, the goals of the learner.

For each of the learning paradigms/theories discussed above, the course will examine its implications on instruction. Examples of learning and teaching strategies, classroom applications, and educational units that model the techniques of those paradigms as well as the integration of technology into the design of such units will be demonstrated and discussed.

Course Goals

By the end of this course, students should be able to demonstrate capabilities in the following areas:

- Identify the underlying principles for each of the learning paradigms/theories discussed in this course;
- Describe the general characteristics of each of the learning paradigms/theories and their impact on knowledge acquisition;
- Compare and contrast the three learning paradigms and their ensuing theories from a cognitive perspective;
- Identify descriptive and prescriptive learning theories;
- Describe the relationship between learning theory, instructional theory, and the practice of instructional design;
- Identify instructional theories, models, and strategies that are suited for each of the learning paradigms/theories;
- Identify instructional applications for each of the learning paradigms/theories discussed in this course;
- Describe the advantages and disadvantages of each of the learning paradigms/theories from an instructional perspective;
- Identify practical applications of each of the learning paradigms/theories in the field of Instructional Technology;
- Describe the implementation of each of the learning paradigms/theories from an Instructional Design perspective.

Required Readings

- Text: Psychology of Learning for Instruction, Marcy Driscoll, 2000, Allyn & Bacon.
- E-reserves: articles have been uploaded as PDF files to http://library.gmu.edu click on e-reserves, search for the course (section 001) and use the password *popcorn* to download these articles;
- Other readings/resources will be in the form of a handout or a URL under course resources as specified in the timeline below.

Readings listed for each week should be done before the next class. Questions, concepts, and or issues pertaining to the topic of the week will be discussed online and in class. You are encouraged to bring your own experience and ideas on the topic to class.

This course will use WebCT (a course management system) to support f2f instruction providing a blended delivery approach. You are encouraged to visit the resources in WebCT often and examine the sample assignments and projects to further your understanding of the course requirements.

Methodology, Class Requirements, and Grading Policy

The requirements are intended to encourage students to think about and take responsibility for the course material. The emphasis will be on understanding and mastery of the central ideas, concepts, and applications of the three paradigms discussed above and their contributions to the teaching and learning process. The success of the course, including what we all learn, is the joint responsibility of all members of the class. As the instructor, I will be responsible for selecting topics, providing course material that will be useful in thinking about the topics, assisting you in making connections between and among these topics, and in connecting them to your interests. However, it is the students' responsibility to learn and to help others learn by participating in class and actively questioning and reflecting on issues.

Although I will take the responsibility for guiding discussions, I will not lecture (except on specific occasions when I have PowerPoint presentations targeted to explicate certain concepts). The class will summarize, critique, and synthesize the material together. The goal of the class is not to deliver information or to provide pat answers to questions, but to provoke questions and to deepen your ability to think about the psychology of learning and its application to instruction. Therefore, it is imperative that you come to class prepared for active involvement.

As part of the learning process, students in groups will take the responsibility for sharing the leadership of one class discussion. Students are encouraged to work together on all requirements for the class. This can include preparation for weekly readings, presentations and papers. All work must be completed by due dates unless a prior arrangement has been worked out with the instructor. Class attendance is mandatory and students missing a class are responsible for completing any missed work.

The following is a breakdown of the requirements and their grade percentage:

1) Research a leader in the field of Instructional Technology: (15% of grade) – Each student will be required to tap into an online database (Who's Who in Instructional Technology at: http://hagar.up.ac.za/catts/learner/m1g1/whointro.html) and research a leader in the field of IT. This means researching the contributions of this leader to the IT field by finding a **scholarly publication** (journal article) by this leader, summarizing it, and adding your own views about this publication, and its significance to the IT field. The summary should be no more than 3 pages long and a copy of the article must be submitted with the assignment.

2) Leading a class discussion: (**20%** of grade) – Early in the course students will sign up in groups of three or four (depending on the class size) for a class period to lead and facilitate discussion on the readings associated with that week. The students will facilitate the class discussion and provide a wrap-up synthesis of the key concepts articulated in the readings. Facilitators will be graded on the amount of participation they elicit from their class members, the relevance of the discussion to the key concepts of the readings, and the activities they use to engage students in a meaningful discussion.
3) Participation grade: (**15%** of grade) – Each student will be expected to participate in all class discussions and group activities and will be graded on the frequency and quality of contributions made. Students can post questions and comments to the

WebCT discussion area assigned for the week. The facilitators and/or the instructor can use these questions/comments as a framework to guide class discussions. Students are also required to keep a journal to record their reflections on the content. The instructor will collect the journal midway through the semester and then at the end of the semester. Students can upload their journals to WebCT.

4) Short paper on learning theory: (30% of grade) – Each student will be required to select **one** learning theory from the readings or from http://tip.psychology.org/ (Theory Into Practice Database: TIP), and write a short paper (8-10 pages), which (1) details the key concepts of the theory, (2) describes its corresponding instructional strategies, and (3) discusses the effectiveness of the theory in achieving its learning goals through its application to instruction. The paper should be supported using at least 6-8 references from scholarly journals, books, or credible Web resources, and should be written APA style.

5) Group project: (20% of grade) – Students will be grouped based on their selections of the learning theories in assignment 4 above and each group will be asked to design an instructional plan based on the principles and instructional strategies of the theories selected. The group will be responsible for selecting a content area, breaking it down into manageable objectives, and designing a lesson plan for a cluster of objectives. The project should include a summary of the key concepts of the theories, an instructional design plan, and a discussion of whether the theory was meaningful for designing instruction for the selected content area. The final product for the group project can be print or web-based. It should be uploaded to WebCT. Each group will present their instructional plan on the last day of class.

Course Timeline (subject to change)

Monday January 27
Introduction and syllabus
Overview of WebCT
Sign-up for "leading class discussions"
Overview of Topics – What is Instructional Technology?
Readings:
Reiser, R. (2001). A history of instructional design and technology. Part I. (e-reserves).
Reiser, R. (2001). A history of instructional design and technology. Part II. (e-reserves).
Saettler, P. (1990). The evolution of American educational technology. (handout)
Begin working on 'researching a leader' assignment

Monday, February 3
Class discussion: Instructional Technology and Cognitive Science
Readings:
Chapter 1 in Driscoll
Ertmer, P.A., & Newby, T.J. (1993). Behaviorism, cognitivism, constructivism: Comparing critical features from an instructional design perspective. (e-reserves)

Monday February 10
Class discussion: The Three Learning Paradigms
Readings:
Chapter 2 in Driscoll
Cook, D. (1993). Behaviorism evolves. (e-reserves)

Monday February 17
Class discussion: Behaviorism
Readings:
Chapter 3 in Driscoll
Weinstein, C. E., & Mayer, R. E. (1986). The teaching of learning strategies. (handout)

Monday February 24 ***Research A Leader assignment due***
Teaching assignment with Rebecca Boyer: Class discussion: Cognitive Information Processing (CIP)
Readings:
Chapter 4 in Driscoll
Norman, D.A. (1978). Notes toward a theory of complex learning. (e-reserves)

Monday March 3
Class discussion: Meaningful reception learning and schema Theory
Readings:
Chapter 5 in Driscoll
Harley, Shawn (1993). Situated learning and classroom instruction. (handout)

Monday March 10

SPRING BREAK

Monday March 17 ***Journals Due***
Class discussion: Situated Cognition
Readings:
Chapter 10 in Driscoll
Reigeluth, C. (1983). Contributions of Gagne and Briggs to a prescriptive model of instruction. (e-reserves)

Monday March 24
Overview of APA Style
Class discussion: Gagne's theory of instruction
Readings:
Chapter 11 in Driscoll
Bednar, A.K., Cunningham, D., Duffy, T.M., & Perry, J.D. (1992). Theory into practice: How do we link? (e-reserves)

Monday March 31
Class discussion: Constructivism and the theory of instruction
Readings:
Chapter 6 in Driscoll

Monday April 7 ***Short Paper Due***
Class discussion: Cognitive Development (Piaget)
Readings:
Chapter 7 in Driscoll

Monday April 14
Class discussion: Cognitive Development (Bruner, Vygotsky)
Readings:
Chapter 9 in Driscoll

Monday April 21 ***Reflection journals due***
Class discussion: Learning and Motivation

Monday April 28 ***Group Project Due***
Class presentations

Monday May 5
Group time