Assignment 1 – Course Redesign Using Learning Theory

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MDDE 603 – Foundations of Instructional Design:   
Systems Analysis and Learning Theory

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# Purpose

This proposal has been developed to provide recommendations for revisions and updates, specific to instructional design, by incorporating new stimulus to one of the core distance education course offered at Athabasca University – MDDE 601: Introduction to Distance Education and Training.

The recommendations for revisions and updates are based on human learning research and theory, focusing on cognitive learning theories and applications that are relevant to an online, web-based learning environment. Included in this proposal is a brief description and overview of the current course, followed by recommendations for re-design applicable to various course components, and a commentary outlining the benefits of incorporating cognitive learning theory into MDDE 601.

# Overview

The existing MDDE 601: Introduction to Distance Education and Training offered at Athabasca University is one of six core courses that are required for the successful completion of the Masters in Distance Education program.

This course is designed to offer an overview of distance education and include the topics: what distance education is; where it came from; whom it serves; how it serves; and what its major problems are. The course goals are to provide a foundation of knowledge, skills, and attitudes that will prepare students for further studies and which will enable them to become competent academics and practitioners of distance education; an introduction to a wide range of literature in the field; a critical attitude towards the rhetoric and practice in the field of distance education and training; and the means to integrate prior knowledge and skills with the newly acquired knowledge and skills developed in the course.

The course relies on the textbooks: *Distance education: A systems view* written by Moore, M., & Kearsley, G. and *The information highway? Lessons from Open and Distance Learning* written by Roberts, J. M., & Keough, E. M. (Eds.) as well as various selections from *The theory and practice of online learning* written by Anderson, T., & Elloumi, F. (Eds.). In addition, each unit includes electronic publications and web resources available to students. MDDE 601 is comprised of three units: Unit 1 Definitions and Examples: Past and Present, Unit 2 Organization and Structure: Variations and Examples, and Unit 3 Theory Development and Research: Issues and Trends. Each unit includes a study guide that consists of learning objectives; a list of assigned readings; assigned activities such as assignments and participation in conferences; a commentary that provides additional information on the unit’s concepts; concluding with a summary that encompasses the objectives learned throughout the unit and final thoughts.

Student evaluation is based on three assignments, one per unit. The assignments include, an analysis and review of one paper selected by students from materials available in the course or elsewhere; a critical analysis and review of an article, to be presented in a conference; and the development of a proposal for the creation of a distance education institution(s) or agency(ies), using principles and concepts learned in the course.

The delivery of MDDE 601 utilizes Moodle software as the Learning Management System. The classroom environment includes links that are helpful in navigating to study guides, resources, discussion forums and assignments; an event calendar, that displays assignment due dates; administration links, that display grades and profile information; along with a list of participants in the course and the course schedule. When completed the course students are given the opportunity to participate in a course evaluation questionnaire where they can provide suggestion and comments.

# Recommendations

Upon completion of a comprehensive review of MDDE 601, recommendations for revisions have been established. These instructional design recommendations are based on the cognitive information processing theory focusing on learner’s attention, perception, and encoding for storage and retrieval of knowledge. The recommendations are divided into these four sections, each include suggestions for incorporating new elements into the existing course – MDDE 601.

## Attention

“Attention is a necessary prerequisite of learning” (Schunk, 2008, p. 139). Gaining and maintaining student’s attention can be a challenging task for distance education instructors. The cognitive learning theory recognizes attention as being an integral part of successful learning; therefore, this section suggests design implementations that will gain and maintain student’s attention. These implementations are directed toward discussion forums, the study guides, the written word and instructor presence in MDDE 601.

Discussion forums and study guides are most effective when each unit begins with an “attention getter” to awaken the student’s interest as suggested by Schunk (2008), “Introduce lessons with stimulating material. Appeal to students’ interests at other times during the lesson” (p.140). When developing an effective “attention getter” consider arousing student’s curiosity by provoking their thinking or pose a question or problem for them to consider. For example Unit 2 - Commentary could commence with. “What’s the Difference?” This simple question gains student’s attention by suggesting that ‘there is a difference’.

As mentioned MDDE 601 is a core course; therefore, class sizes tend to be quite large resulting in numerous postings in the discussion forums causing students to become overwhelmed and disinterest in the forums. To resolve this problem divide the class into smaller groups to maximize the effectiveness of discussion forums and promote optimal peer learning. Peer learning increases attention, fosters academic and social motivation for learning, and promotes achievement (Schunk, 2008, p. 299)

Maintaining attention is imperative; therefore, as suggested by Schunk (2008), ensure that course readings are relevant, current, and purposeful. “Attentional demands will vary considerable depending on the purpose of reading” (p.141).

Furthermore, Schunk (2008) suggests to “use different materials as teaching aids” (p. 140) maintaining student attention. Presently, MDDE 601 contains text heavy course materials, which can often lead to attention loss, lack of motivation, and decrease memory retention amoung students. To avoid these symptoms, consider utilizing a web-authoring tool that provides students with interactive materials. Many web-authoring software products are capable of producing creative, interactive content. Schunk (2008) cites that, “Games can emphasize thinking skills and problem solving but also can be used to teach specific content” (p. 313). For instance, MDDE 601 contains various terms that are often confused, such as virtual, e-learning, online learning, and blended. Include flash card activities that provide terms and definitions. This repetitive type of activity maintains student’s attention and promotes rehearsal.

Lastly, it is imperative that the instructor is enthusiastic, objective, accepting and open to new ideas and that he/she engages students by encouraging class discussion, peer tutoring, and cooperative learning. Implementing instructional design strategies that gain and maintain student’s attention significantly contribute to the storage and retrieval process of cognitive learning.

## Perception

The cognitive information processing theory incorporates a model that identifies the stages of human information processing. The first stage of this model recognizes the significance of perception or pattern recognition as discussed by Schunk (2008):

The appropriate sensory register receives the input and holds it briefly in sensory form. It is here that perception (pattern recognition) occurs, the process of assigning meaning to a stimulus input. This typically does not involve naming; naming takes time, and information stays in the sensory register for only a fraction of a second. Rather, perception involves matching an input to known information (p.133).

Perception as defined by Schunk (2008), “refers to attaching meaning to environmental inputs received through the senses” (p. 141). Subsequently, it is important to incorporate sensory elements into MDDE 601.

A recommendation to increase the level of perception in MDDE 601 is to integrate meaningful examples to clarify objectives and new concepts throughout the study guides and discussion forums; in addition provide an example of the concept in the discussion forum and encourage students to share examples that are relevant to their own circumstances, resulting in meaningfulness perception. To exemplify this concept, students could comment on the type of distance education institutions/organization that they have experienced, such as virtual, e-learning, online learning, or blended. While implementing activities that develop perception consider Jensen’s (1997) comments, “change the model from ‘filing up’ their brains with content, to ‘growing out’ their brains by expanding existing knowledge (networks). You can extend natural knowledge, reframe knowledge, or change the content of the application” (p.2).

In addition to providing meaningful examples enhance the study guide by utilizing audio visual resources, such as video, to deliver the study guide commentary; this tool will employ the vision and hearing sensory registers of the learners.

Schunk (2008) suggests the importance of the perception process and how it contributes to cognitive theory:

“Information initially enters the information processing system through a sensory register after it is attended to, after which it is perceived by being compared with information in long-term memory and then enters short-term or working memory. This information can stay activated, be transferred to long memory, or be lost” (p.181).

## Encoding

The definition of encoding as defined by Schunk (2008), “is the process of putting new (incoming) information into the information processing system and preparing it for storage into LTM. Encoding usually is accomplished by making new information meaningful and integrating it with known information in LTM.” (p. 153), this is often referred to as transfer. Encoding involves three important features, organization, elaboration and schemata. Each of these is outlined with corresponding recommendations applicable to MDDE 601 and to the encoding process of cognitive learning.

Organization. To ensure that encoding is occurring, organization is essential. By providing an organized structure to learning materials, students are able to connect new concepts with prior learning.

The existing study guides in MDDE 601 are organized into three units; each includes numerous objectives, resulting in a large quantity of reading activities which contributes to an overload of information. Schunk (2008) supports this observation by citing: “the human information processing system only can handle so much processing at once. For example, if too many stimuli impinge simultaneously, observers will miss many of them because of their limited attentional capacity” (p.298). To rectify this information overload, reduce each unit into small “organized chunks” and incorporate more discussion forums. Consequently, the new material will be manageable and allow students the opportunity to encode and reflect on small of amounts of new material.

In addition, the present study guides includes a total of 11 objectives distributed over 13 weeks. Many objectives are broad and cover large amounts of material. It would be beneficial to revise the objectives to be more specific and distribute each current objective to span over one week. See Appendix A.

Furthermore, organization aids in memory recall by linking concepts in an organized pattern that prompts the memory to identify linked items. Consider incorporating visual aids into the study guides such as meaningful charts, pictures, or slideshows to represent relationships or introduce concepts. See Appendix B.

Elaboration. Additionally, elaboration is also used to employ encoding. As Schunk (2008) states, “Elaboration is the process of expanding upon new information by adding to it or linking it to what one knows. Elaborations assist encoding and retrieval because they link the to-be-remembered information with other knowledge” (p.154). Mnemonics, imagery, questioning and note taking are often used to elaborate on concepts. A useful complex learning task that is ideal for MDDE 601 is synthesis and application questioning. Synthesis questioning relates components to form a whole; forming conclusions based on observations and inferences, whereas application questioning uses ideas, information, concepts, and processes in new situations (Bloom's Taxonomy of Cognitive Levels, 2011, p.1). A correlated example refers to Unit 1 study guide. The commentary refers to “individual” or “group based” learners. A synthesis type question is “How do individual and group based learning relate to distance education?” and an application question is “How do individual and group based learning apply to Distance Education?” The questioning process contributes and supports and endorses elaboration provoke thinking processes such as, recalling, contrasting, organizing, inferring, and predicting.

Schemata. Schunk, (2008), defines schemata as “The organized structure of large amounts of information into a meaningful system” (p.155). As mentioned, MDDE 601 consists of multiple reading materials; schemata can be applied by encouraging the students to adopt an organized reading pattern. Suggest that students read course materials by following these steps: 1) Read the introduction and summary of the paper 2) Read each heading to get a feel of the paper 3) Read the paper 4) Answer questions provided on the study guide. Incorporating these logical steps will help provide meaning to course readings.

## Storage and Retrieval

Attention, perception, and encoding have an enormous impact on the process of storing information in LTM. (Schunk, 2008) “According to the encoding specificity hypothesis (Thomson & Tulving, 1970), the manner in which knowledge is encoded determines which retrieval cues will effectively activate that knowledge” (p.167). These processes must occur for effective transfer of information from short term memory to long term memory. The storage and retrieval process is necessary to bring forward previous learned material used to understand new material by recognition and recall. (Unknown, 2010, p. 1)

# Commentary

This proposal contains many recommendations designed to generate attention, motivation, effective perception and encoding processes that contribute to moving information from sensory memory to short term memory to long term memory. A summary of suggested changes is as follows: Add attention getters to course content, divide the class into small group, utilize a variety of teaching methods, include interactive materials, encourage peer learning, provide meaningful examples, incorporate audio visual material, revamp the existing course schedule, add visual aids, provide higher level questioning. offer helpful reading techniques, and maintain instructor interaction and enthusiasm. Recommended changes to study guides, discussion forums, activities, instructor participation incorporated into MDDE will increase retention of knowledge as outlined by (Schunk, 2008):

Learning or encoding occurs when information is stored in long-term memory. Information initially enters the information processing system through a sensory register after it is attended to, after which it is perceived by being compared with information in long-term memory and then enters short-term or working memory. This information can stay activated, be transferred to long term memory, or be lost. Factors that help encoding are meaningfulness, elaboration, organization and links with schema structures. (p. 181)

Applying these recommendations to MDDE 601 will engage students and aid in this process of effective and efficient learning and most importantly foster livelong learning.

# Bibliography

*Bloom's Taxonomy of Cognitive Levels*. (2011). Retrieved from Teaching Effectiveness Program: http://tep.uoregon.edu/resources/assessment/multiplechoicequesitons/blooms.html

Jensen, E. (1997). *Brain compatible strategies.* Del Mar, CA: Turning Point Publishing.

Schunk, D. H. (2008). Learning theories: An Educational Perspective. Upper Saddle Hill, NJ: Pearson Education Inc.

Unknown. (2010). *Unit 3 - Cognitive Information Processing.* Retrieved from MDDE 603 - Foundations of Instructional Design: Systems Analysis and Learning Theory: http://cde.lms.athabascau.ca/mod/resource/view.php?id=13786

# APPENDIX A

REVISED COURSE SCHEDULE

|  |  |
| --- | --- |
| Week 1 | Define distance education and give a range of examples and variations.  Discuss the attributes and characteristics of distance education as derived from the literature in the field. |
| Week 2 | Define, describe and distinguish among related terms such as: correspondence education, open and distance learning, adult education, learner–centred education, independent study, external studies, continuing education, and technology–based education including virtual learning, online learning, e–learning, and blended or hybrid learning. |
| Week 3 | Describe and give examples of how technology, curricula, clientele and practices of distance education have changed over time.  Discuss and describe areas and dimensions along which additional changes may be anticipated. |
| Week 4 | Assignment 1 |
| Week 5 | Describe and give examples of the ways in which distance education agencies and institutions accomplish the following key functions:   * + recruiting and marketing,   + enrolling and registering,   + examining, crediting and issuing credentials,   + obtaining and managing money and other resources,   + acquiring or developing courses and programs,   + producing, reproducing, storing, and disseminating materials,   + delivering courses and programs,   + teaching students, supporting students, and evaluating and revising courses, programs, processes and procedures. |
| Week 6 | Compare and contrast examples of distance education applications in terms of the following:   * + their organizational arrangements;   + the kinds of clients they serve;   + the numbers of clients they serve;   + the curricula they offer;   + the media and technology they employ; and,   + their role in social or political development.   + When given examples of circumstances and problems, describe the arrangements that might best address those problems.   Discuss and describe some of the theory development, concepts and constructs current in distance education. |
| Week 7-9 | Assignment 2 |
| Week 10 | Due Discuss and describe the arguments about such issues in distance education as: access and equity; academic credibility; tutoring and student support; independence and interaction; the role of technology; and the roles of distance education in national and international development. |
| Week 11 | Discuss and describe ongoing and potential research initiatives in distance education. |
| Week 12-13 | Assignment 3 |

# APPENDIX B

SAMPLE GRAPHICS

**Figure 1** Unit 3 - Charles Wedemyer's concept of autonomy

**Figure 2** Unit 3 - Moore's transactional distance theory, three essential transactional relationships regarding distance education