Assignment 1
Comparison of Learning Theories

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Theories of Learning

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A Theory of Instruction by Robert M. Gagné (1916 – 2002)

A Brief Biography

Robert Mills Gagné, a graduate of Yale and Brown University, began his career when behaviorism was the focus. He was very focused on task analysis and often pondered, given only instruction, what behavior a learner would have to do to learn a new skill. He taught psychology at Princeton, held numerous research positions, and was a Professor of Educational Research at Florida State University (White, 2002).

The Theory

Gagné's theory of instruction is composed of three major elements: (a) learning outcomes, (b) conditions for learning, and (c) nine events of instruction (Driscoll, 2005). The learning outcomes are categorized as verbal information, intellectual skills, cognitive strategies, attitudes, and motor skills. These five categories are Gagné's version of the standard knowledge, skills, and attitudes (KSAs) that came about from Mager's popularization of behavioral objectives. In the last 20 years or so, training (education) researchers criticized KSAs because they were not broad enough (Jonassen, Tessmer, & Hannum, 1999). Most instructional designers use Gagné's learning outcomes as the structure for defining performance objectives (Jonassen et. al, 1999).

Closely related to learning outcomes are the conditions for learning. Gagné suggests that external influences may affect the various learning outcomes. For example, to help a learner achieve an attitude outcome, provide that learner with a role-model (Driscoll, 2005). The role model could lead by example and the learner might follow the example; thus learn the desired attitude.

The final aspect of Gagné's theory of instruction is the nine events of instruction. These events, in a sense, are the events that a teacher goes through to present material to a learner (Driscoll, 2005; Jonassen et al., 1999). The nine events are: (1) gaining attention, (2) informing learners of the objective, (3) stimulating recall of prior learning, (4) presenting the content, (5) providing "learning guidance," (6) eliciting performance, (7) providing feedback, (8) assessing performance, and (9) enhancing retention and transfer. Originally, Gagné proposed that these nine events occur in this sequence. He later suggested that the sequence is approximate and may not always be the same (Driscoll, 2005; Jonassen et al., 1999).

Constructivism: Another Theory of Learning

David Jonassen, A Leading Constructivist

One of the leading constructivists is David Jonassen. He is currently a Distinguished Professor at the University of Missouri. Jonassen began his career in the 1970s, in the midst of the blooming of cognitivism. He has held many positions that focused on education or training. Even though his career seems to be concurrent with cognitivism, Jonassen's research has been on constructivist ideas, such as problem-based learning environments (Jonassen, 2006).

The Theory

Constructivism is based on the notion that learners construct their own knowledge based on existing knowledge (Driscoll, 2005; Sewell, 2002). Three elements support this notion. They are: (a) learning goals, (b) conditions for learning, and (c) methods of instruction. A constructivist's learning goals would include reasoning; critical thinking; retention, understanding, and use; cognitive flexibility; self-regulation; and mindful reflection, epistemic flexibility. It appears that constructivist learning goals are focused on building attitudes, in that they appear to be situational (Milbrandt, Felts, Richards, & Abghari, 2004).

In a constructivist learning environment, the conditions for learning may include: (a) complex, realistic and relevant environments that incorporate authentic activity; (b) social negotiation; (c) multiple perspectives and multiple modes of learning; (d) ownership in learning; and (e) self-awareness in knowledge construction (Driscoll, 2005). These conditions for learning appear to provide learners with learning environments that may closely emulate the performance environment, making the transfer of knowledge from the learning setting to the performance setting simpler.

The third element that supports the constructivism notion is methods of instruction. The methods of instruction align closely with the conditions for learning. Constructivists would use microworlds, problem-based learning, collaborative learning, bubble dialogue, hypermedia; open-ended learning environments, role plays, and debates as methods (Driscoll, 2005). These methods have the potential to provide a performance-like situation in the security of the learning environment (Milbrandt et al., 2004). The learners are expected to construct their own knowledge for the situation presented, yet may make mistakes because they are in a learning environment.

Gagné vs. Constructivism: Epistemologically

Gagné's theory is a good example of blended behaviorism and cognitivism. There is still a heavy focus on instructing, in that a teacher provides for a learner. However, this is accompanied by the use of the learner's memory to recall prior learning. Gagné's theory conforms to the epistemic belief that human knowledge is based on a presentation of information or informational cues to the learner. The learner is expected to perform to the constructs of behavioral objectives. Knowledge is limited to what the teacher prescribes and what the learner can recall from prior learning (Driscoll, 2005; Moallem, 2001).

Conversely, constructivism conforms to the epistemic belief that human knowledge is constructed by the learner. The learning goals are affective in nature and require the learner to build knowledge from all domains. Specific measurable performance objectives are typically not defined because the learner is expected to construct his or her own objectives. Constructivist conditions for instruction and methods of instruction provide nearly unlimited situations for learning construction. If knowledge is even limited in a constructivist environment, then it would be limited only to what the learner deemed irrelevant or unnecessary (Driscoll, 2005; Milbrandt et al., 2004; Moallem, 2001).

Impact on Curriculum Development

Curriculum development is a process that educators use to develop instructional materials. There are a variety of methods in existence—for the purposes of this discussion, the ASSURE model will be used. ASSURE stands for analyze learners; state objectives; select methods, media, and materials; utilize media and materials; require learner participation; and evaluate and revise (Smaldino, Russell, Heinich, & Molenda, 2005). Gagné's theory of instruction seems to almost fit in seamlessly with the ASSURE model. ASSURE clearly requires specific measurable performance objectives which align with Gagné's learning outcomes and the nine events of instruction. The selection and use of methods, media, and materials align with Gagné's conditions of learning and also the nine events of instruction. Constructivism, on the other hand, appears to conflict with the ASSURE model. First, if learners are to construct their own learning, how can specific objectives be identified? Second, and along this same thought, the specific selection of methods, media, and materials seem to limit the learner's experience. ASSURE appears to support teacher-centered methods of instruction, where as constructivism is a learner-centered method.

Impact on Instructional Design

Instructional design is a systematic process of developing instructional materials. There are a variety of methods in existence—for the purposes of this discussion, the Dick and Carey model will be used. Dick, Carey, and Carey (2005) propose a method that includes the following steps, some of which are an iterative process: (a) identify instructional goals, (b) complete instructional, context, and learner analysis, (c) write performance objectives, (d) develop assessment items, (e) develop instructional strategy, (f) develop or select materials, and (g) conduct formative and summative evaluations. Both Gagné's theory of instruction and constructivism align well with the Dick and Carey method of instructional design. Performance objectives, for example, are a necessary component in Gagné's theory as they are part of the nine events of instruction. However, performance objectives in constructivism may not be the same. If learners are expected to construct their own learning, how can a specified objective statement be created? It appears that constructivism may only require instructional goals to provide the shape of the learning (Milbrandt et al., 2004; Sewell, 2002).

Conclusion

The theories discussed in this paper are just two of many theories of learning. Is one theory better than another? It is often suggested that no one theory is superior and that a combination of theories may result is superior learning (Zemke, 2002). This author concurs with this statement based on experiences in his instructional design role in a corporate learning and development organization. It appears that the best learning occurs when a variety of learning theories are incorporated into the design of a learning product. At the beginning of the learning, when knowledge is minimal, behavioral methods seem to work best. Toward the middle of the learning, once the learners have an understanding of the concepts, cognitive methods work to

help the learners build their own personal foundations. Finally, the learning experience ends with constructivist methods in which the learners construct their own applied learning. It is at this point when a true assessment of learning can take place.

References

Dick, W., Carey, L, & Carey, J. (2005). *The systematic design of instruction*. Boston: Pearson.

Driscoll, M. (2005). *Psychology of learning for instruction (3rd. ed.)*. Boston: Pearson.

Jonassen, D. (2006). http://www.coe.missouri.edu/~jonassen/

Jonassen, D., Tessmer, M., & Hannum, W. (1999). *Task analysis methods for instructional design*. Mahwah, NJ: Erlbaum.

Milbrandt, M., Felts, J., Richards, B., & Abghari, N. (2004). Teaching-to-learn: a constructivist approach to shared responsibility. *Art Education 57*(5) 19-33. Retrieved May 21, 2006 from ProQuest database.

Moallme, M. (2001). Applying constructivist and objectivist learning theories in the design of a web-based course: implications for practice. *Educational Technology & Society 4*(3). Retrieved June 3, 2006 from http://www.ifets.info/journals/4_3/moallem.html

Sewell, A. (2002). Constructivism and student misconceptions: why every teacher needs to know about them. *Australian Science Teachers' Journal 48*(4). 24-28. Retrieved May 21, 2006, from ProQuest database.

Smaldino, S., Russell, J., Heinich, R., & Molenda, M. (2005). *Instructional technology and media for learning*. Upper Saddle River, NJ: Pearson.

White, R. (2002). Robert Mills Gagné, 1916-2002. *Educational Researcher 31*(9), 34. Retrieved June 8, 2006, from WilsonWeb database.

Zemke, R. (2002). Who needs learning anyway? *Training 39*(9) 86-91. Retrieved May 21, 2006 from ProQuest database.