

Comparison of Instructional Design Models

Christa W. Cliver

The University of West Georgia

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Abstract

Since the beginning of mankind, sharing information, passing on knowledge, and creating communities of learners has shaped our world. The modern day term for this process is called Instructional Design; however, the principles and practices behind this concept did not formulate overnight. In fact, it has taken centuries to pinpoint specific processes that demonstrate the concept of sharing and passing on of knowledge. According to George M. Piskurich (2006), “Instruction design is really a set of rules or procedures, you could say, for creating training that does what it is supposed to do.” These “sets of rules” eventually became learning models, which offer a variety of learning methods. In this discussion, we’ll explore the history of Instructional Design, compare various learning models and practices, and evaluate applications for applying Instructional Design models.

Comparison of Instructional Design Models

The inquiry into the study of learning began in the late 1800's when researchers such as Ebbinghaus and Pavlov studied how people forget and the effects of classical conditioning. BF Skinner used the studies of Ebbinghaus and Pavlos to develop the radical behaviorist approach to learning, while others such as Piaget and Vygotsky studied a learner's stages of development and the cognitive processes associated with learning (Markham, 2008).

It wasn't until World War II, when Robert Gagne developed training materials for those in the military that the concept of instructional design was born. At that time, it was vital that instruction be efficient and effective to the masses so that each individual soldier obtained the correct information for the war effort to be successful. Through this endeavor, researchers examined training programs and developed effective ways in which to deliver instruction. They discovered the importance of knowing the entry skills of learning and designed their instruction to meet the specific individual needs (Markham, 2008).

Later, in the 1950's and 1960's, the early studies of BF Skinner influenced the development of learning modules that were skill-based, presented information in small steps with frequent questions, and provided immediate feedback for the user. Now that educators had a way to measure learning based on assessments from the modules, the complete concept of Instructional Design was formed (Markham, 2008).

Although the base-concept of Instructional Design has stayed the same throughout the years, there have been new influences and ways of thinking that have generated modifications to the original concepts.

Constructivist Models

In the 1980's, the world changed with the application of the computer and technology into the classroom. Many instructional designers worked to develop programs that could be used with the inclusion of technology and as time went on and technology advanced, so did the ability to incorporate technology into learning (Faryadi, 2007). This fueled a constructionist theory of instruction to encourage students to interact with each other and the environment to construct their own learning. In the early 1990's, constructivism became an educational philosophy based the writings of Dunlap and Grabinger; Merrill; Savery and Duffy; and Wilson, Jouchoux, and Teslow. Authors Robert A. Reiser (2012) and John V. Dempsey (2012) condensed these writings into basic principles of constructivist models in their text, *Trends and Issues in Instructional Design and Technology*:

Learning is an active process of meaning-making gained in and through our experience and interactions with the world; Learning opportunities arise as people encounter cognitive conflict, challenge, or puzzlement, and through naturally occurring as well as planned problem-solving activities; Learning is a social activity involving collaboration, negotiation, and participation in authentic practices of communities; Where possible, reflection, assessment, and feedback should be embedded “naturally” within learning activities; and Learners should take primary responsibility for their learning and “own” the process as far as possible. (p. 45)

These points suggest the re-distribution of pre-conceived roles for the teacher and student and are meant to engage learners in a process of inquiry and activity, rather than the traditional role of the instructor guiding the student in the learning process.

The most common instructional design models for constructivism include: Discovery Learning, Inquiry Teaching, Problem Based Learning, Project Method, and Observational (Social) Learning. While each model is effective in its own way, this discussion will focus on one model: Project Method. This model allows students to collaborate and work together to make sense of what is going on and pushes them to solve problems by debating ideas, making predictions, drawing conclusions, and communicating their ideas and findings to others.

Even though Project Method contains a “driving question” that serves to organize and drive activities, there are essential steps that must be taken to ensure that the task meaningfully addresses the driving question. First, students must categorize the problem, which leads into the project-based portion of the instructional sequence. Next, students must pair into teams or groups to discuss how individual expertise will be acquired to solve the problem. Students then must investigate the problem and report back to the other students (Cengage, 2010). The Project Method approach to learning allows students to assess their ability to learn for themselves, as inquiry can no longer be interpreted by the teacher. This model is ideal for scientific classes, as it prompts students to develop a “hypothesis” and then investigate theories.

Prescriptive Models

Models which provide guidelines or frameworks to organize and structure the process of creating instructional activities are commonly referred to as Prescriptive Models. The most common models associated with the prescriptive theory include: the ADDIE Model, ASSURE Model, the Dick and Carey Model, and the Robert Gagne Model, all which aim to meet students where they are and individualize learning needs determined through careful evaluation and analysis of the learner.

For purposes of this discussion, the ASSURE Model, whose name is derived from the essential phases of the model, will be explored in depth. This model assumes that instructional material will not be delivered via lecture or textbook, and allows for the possibility of incorporating non-traditional resources, such as Internet or computer based technology. The ASSURE Model is especially helpful for instructors designing online courses.

The first step of this model is to ANALYZE the learning. This is where the instructor will identify established skills and knowledge of their learner, such as learning styles. Next, the instructor will STATE the objective and take into account the audience characteristics, the desired behaviors, the conditions under which the learner will perform the task, and the degree to which they will demonstrate the mastery. The instructor will then SELECT methods, media, and materials to determine the best way to effectively present information to the learner and then UTILIZE those materials to demonstrate information to the learner. The last two steps, REQUIRE learner participation and EVALUATE and revise, allow the instructor to indicate how the learner will be actively involved in the learning process and describe what type of assessment instruments will be used to assess the learning (Academy of Teaching Excellence, 2002).

Cognitivism Models

Cognitivism instructional models emphasize the internal learning processes and connections that take place and help learners attach new information to prior knowledge. Some of the most common Cognitivism Models include: Advance Organizers, the Cone of Experience, Information Processing, and Concept Mapping, which will be expanded upon for purposes of this discussion.

Concept Mapping uses the graphical tool of diagramming to show relationships. Just like the “webs” one would create in kindergarten, this model uses boxes or circles that contains

important ideas of the topic and then connects them with information arrows or lines. Not only does this technique help the learner to visualize the information, it also allows for a “dump” of information into one place that can then be sorted. Concept Mapping begins with learners writing down major terms or concepts and then identifying the most general, intermediate, and specific concepts. To begin drawing the map, students should circle concepts/ideas, with the most general at the top and intermediate and specific following. Then, students should draw lines or arrows between related concepts and then label the lines with “linking words” to indicate how the concepts are related. Of course, revision should be the final step to ensure all the information is correctly mapped. A major advantage of the Concept Mapping model is that it allows learners to organize large amounts of information into small parts and is helpful to those students that learn visually (Adsit, 2002).

Discussion

One major idea I’ve learned through my research of instructional design and the concept models that reinforce learning is that each person has a way of natural learning that is not dependent on taking a formal course. While I feel that designing a learning process is beneficial to many, I also believe that as humans, we learn through our experiences and through the things we see and hear. To me, instructional design guides learners to make sense of new information they get and helps learners to place that knowledge in a meaningful, long-lasting place in the brain.

I really enjoyed exploring in-depth the model of Concept Mapping, as I think it does a great job of allowing learners to condense a lot of information into a more manageable amount of knowledge that one can comprehend. For instance, say a student was asked to write on the topic of tropical vacation destinations. Immediately, the student could venture into a variety of

different sub-topics like eastern Caribbean, western Caribbean, Mediterranean, rain forest, etc. By using the Concept Mapping technique, the student would be able to narrow their focus down on a specific sub-topic, such as western Caribbean and then focus on the specific attributes that the western Caribbean has to offer. Instead of having the learner become focused on a number of ideas, they are able to focus narrow down their choices to focus on very specific pieces of information.

While I personally think that Concept Mapping is a great tool for instruction, I think that any model that aids in the learning process is beneficial to both the instructor and the student. Say a college graduate recently accepts a teaching position and hasn't had the experience of developing lesson plans geared around students with different learning strengths. He/she would be able to take an instructional design model and apply that to his/her various needs to teach the students.

There are many established instructional design models that instructors have used and will continue to use effectively in classrooms; however, I think that anyone can play a role in the development process of a concept model. Let's go back to the example of the new teacher. Say this teacher has used a variety of models for his/her students, but is not receiving the outcomes expected. This teacher could develop a model that works specifically for his/her individual student, group of students, or even to the entire class.

Thinking ahead to my future as a media specialist, I believe that there are many ways in which I could be influential to the development of a new instructional design concept, whether I do a "case study" on a specific group of students or if I work with a group of teachers to identify a specific learning model concept that works for a targeted group of students. In my current position, I am given a lot of responsibility to work with many adult volunteers to ensure that

some of our historical, rare documents are transcribed. This task allowed me to understand that even as adults, we learn differently and I needed to adjust the way in which I presented the transcription information to a few individuals.

I believe learning is a complex process and that an effective instructional design instructor provides an invaluable resource when it comes to understanding the world around us.

Resources

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