

INSTRUCTIONAL DESIGN MODELS: SHIFTING THEORETICAL PARADIGMS

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Abstract. Instructional design models have been shifted throughout the years by different scholars because they need to be developed or modified to gain the effectiveness of instructional process. Concerning with the shifts of the related theories, the scholars formulated a number of patterns in creating the theories in which the aim of this theoretical study is to provide an appropriate understanding in relation to how to utilize instructional design models. Instruction is regarded as both teaching and learning which have connection with the building of knowledge and skills. Even though there are a lot of instructional design models, a few major distinctions are found in some conditions, e.g. instructional design models present conceptual paradigms in terms of visualizing, performing, and controlling processes for embodying high-standardized teaching and learning artifacts. The exact choice of instructional design models helps us to match the right process with the existing situation. Therefore, instructional design models require a valuable source to match the proper creative process to the proper design situation and also an effective rationale for conducting instructional design research.

Keywords: *Instructional design models, theoretical paradigms*

INTRODUCTION

Instructional design is meant as systematical procedures for improving education and training curricula consistently (Branch & Merrill, 2011). Instructional design covers to be a selected process of creating outcomes, determining effective strategies for instructional processes, employing relevant technologies, analysing educational media, and assessing performance. Instructional design is concerned with human learning by managing a number of external events based on educational and training contexts (Gagné, Wager, Golas, & Keller, 2005). An instructional design process runs well when its implementation is matched to a targetting context. but, educational contexts seem very complicated and contain complex issues in line with instructional process.

Instructional design can be named as instructional development. The related term instructional development originally come from a project carried out at Michigan State University from 1961 to 1965 and meant as a systematic process for evaluating instruction Gustafson and Branch (2002). The last report "Instructional Systems Development: A Demonstration and Evaluation Project" (Barson, 1967) could be accessed as ERIC document ED 020673. The Barson (1967) model contains one model that is subjected to evaluate different situations at various institutions. According to Gustafson and Branch, the Barson project also resulted in a number of heuristics for instructional developers. These heuristics contained the relevant research on the instructional design process and also promoted a general guide for developers in higher education. Meanwhile, Seels and Richey (1994) employed the term instructional systems design (ISD) and considered it as "a well-prepared procedure that covers the stages of analyzing, designing, developing, implementing, and evaluating instruction".

regarding the notions of instructional design and development process covering activities for constructing lesson plans and selecting relevant instructional strategies, sequencing, motivational elements, and learner actions. therefore, the terms instructional design and instructional development have been used interchangeably and often considered synonymous. A complete discussion about the possible differences and other nuances of each term is beyond the scope of this chapter. The role of instructional design models contain three assumptions: (1) instruction includes both teaching and learning, (2) education encompasses macro-learning activities, and (3) instruction focuses on micro-learning activities (Branch, 2013). Instruction covers teaching and learning because teaching and learning have connection with the development of knowledge and skills. Teaching is regarded as the action committed by the person or the technology that supports to present the content and aims to obtain knowledge and skills. Teaching is also a tool to set up external events for the development knowledge and skills. Thus, The assumption is that instruction concerning with learning that is intentionally performed (Tennyson, 1997) rather than unintentionally performed. Unintentional learning occurs from everyday activities. While unintentional learning could exist in different ways, such as via conversations, observations, impressions, and any unintended stimuli that happen based on the context, intentional learning develops spontaneous information flow, real experiences, and a sense of community. Intentional learning is influenced by goal-oriented strategies rather than incident-oriented strategies (Branch, 2013)

Role of models in instructional design can vary based on its context. Models forms representations of reality. A model is basically a simple representation of various forms, processes, and ideas. Seel (1997) points out three kinds of instructional design models (theoretical/conceptual, organization, and planning-and-prognosis) and considers instructional design models as organization models that could be employed as general prescriptions for instructional planning. One of the most influential instructional design model conceptor was Silvern (1965) in the 1950s and 1960s. Silvern's work with the military and aerospace industry led to new paradigm of instructional design model with multiple characteristics that embraced the general systems theory. Silvern's instructional design model is seldom implemented today, but it stil has significant contributions for obscure writing. In brief, Silvern's model is very influential towards the content of contemporary instructional design models. Meanwhile, Hamreus' instructional model process contained the basic structure for the Instructional Development Institute (IDI) model (National Special Media Institutes, 1971). Hamreus' model was assessed by Twelker (1972) . The IDI model was widely distributed and was well-known in the United States in the 1970s and 1980s. . Stamas (1972) assessed 23 models to figure out whether they belonged to ID process or not. Andrews and Goodson (1980) also assessed 40 instructional design models which were similar to Stamas, Andrews and Goodson established a matrix of instructional design elements and focused on analyzing the models for their perceptions of those elements. Salisbury (1990) assessed a number of instructional design models from main textbooks in the field to gain the degree to which they brought specific references to a range of general systems theory concepts. Salisbury drew the conclusion that most models consisted of few specific references to those general systems concepts contained in his matrix. Edmonds, Branch, and Mukherjee (1994) showed the results of a review of instructional design models as a way to address their proliferation over the previous decade. Edmonds et al. had the point of views that an instructional design model is well-understood when it is categorized by its context and by the level of application for a specific context.

Instructional design models nowadays follow the guiding principles for analyzing, producing, and revising learning environments. Instructional design models either old or new should cover contemporary and emerging theories about planned learning and the broad array of contexts in which instructional design is being implemented. Reiser (2001) noted "eventhough the specific combination of procedures are often different from one instructional design model to the next, most of the models include design, development,

implementation and evaluation of instructional procedures and materials aimed to solve those problems". instructional design processes bring five major activities: 1). Analysing the setting and learner needs 2). Designing a set of specifications for an effective, efficient, and relevant learner environment 3). Developing all learner and management materials 4). Implementing instructional strategies 5). Evaluating the results of the development both formatively and summatively. The addition of detail related to specific applications resulted in creating a number of different instructional design models. Conceptual tools and operational tools help to identify those contexts within which an instructional design model may be employed.

Research Methodology

This study is closely related to theoretical one in which the researcher or author reviews or compiles a number of relevant studies on instructional designs from old versions to current ones. The theoretical reviews could become the guiding parameter to figure out the better understanding towards the concept of instructional design models year by year. Regarding the introduction, the models have been developed as well as shifted by the scholars to determine the best ones which assist the effectiveness of instructional process. In addition, the scholars' reviews bring new schemata in line with the constructions of knowledge and skills in implementing the instructional design models. This study is aimed to reveal what the conceptual and operational tools that can be used to implement the instructional design models by considering different perspectives.

Findings and Discussion

1. Instructional Design Model as Conceptual Tool

Instructional design models visually convey their associated processes to stakeholders by drawing the procedures that lead to produce teaching and learning materials. Instructional design models contain the communication elements for selecting appropriate outcomes, gathering data, analyzing data, performing learning strategies, using media, carrying out assessment, and implementing and revising the result. The five core conceptual elements which are Analyze, Design, Develop, Implement, and Evaluate (ADDIE), unite each other as development takes place and revision continues through the completion of the instructional design process. ADDIE gives a useful parameter for figuring out whether a model is inclusive of the entire instructional design process or only one or more of its essential elements. Conceptual tools help to identify the contexts within which an instructional design model may be utilized. In fact, the quantity and quality of tools along with a model get significant criteria for determining one for a specific context. ADDIE concept is also known as rectilinear one that is often used to teach novice designers designing process because the concept is simple, generic, and applicable across many different contexts. Critics of instructional design models sometimes regard them as stifling, passive, lockstep, and simple because of the visualizations used to create the corresponding model (Branch, 1997). Bichelmeyer, Boling, and Gibbons (2006) reviewed the use of rectilinear models for failing to give novice designers with a picture of the design process that covers the manner in which designers in the field take a part in instructional design. In addition, prototyping instructional design model stresses out early development of a simple and incomplete prototype that then turns into a complete design as the client and developers get clearer on what the problem is and the type of solution proposed (Stokes & Richey, 2000; Tripp & Bichelmeyer, 1990)

Instructional Design Models as Operational Tools

While models serve the conceptual reference, they also serve the framework for selecting or constructing the operational tools needed to employ the model. Tools such as PERT charts, nominal group techniques, task analysis diagrams, lesson plan templates, worksheets for achieving objectives, and production schedule templates operationalize the instructional

design process. Some instructional design models cover highly prescriptive information about how to build the companion tools or give most of the tools necessary to perform the process. The Interservices Procedures for Instructional Systems Development model (Branson, 1975) is the representation of a highly prescriptive instructional design model with a understandable set of companion operational tools. The Dick, Carey, and Carey (2005) model is regarded as moderately prescriptive and contains a number of companion operational tools. Describe tools that can be applied with different instructional design models for those models having few or no accompanying tools. Effective instructional design models directly or indirectly result in products, such as timelines, samples of work, and periodic endorsements by appropriate supervisory personnel with other pertinent deliverables. Instructional designers compose many tools by themselves and other designers as well as tools to scaffold teachers or subject matter experts in performing their own development. Goodyear (1997) and van den Akker, Branch, Gustafson, Nieveen, and Plomp (1999) show the descriptions in line with tools and how they are being employed. However, specific procedures for planning, conducting, and managing the instructional design process can be done with operational tools that may or may not be classified as part of the instructional design model.

Conclusion

People who are required to utilize instructional design models might be well served to reveal the instructional design competencies needed to successfully conduct an instructional development model, such as those promoted by the International Board of Standards for Training, Performance and Instruction (Richey, Fields, and Foxon, 2000) . Instructional design models give conceptual tools to visualize, direct, and manage processes for composing highquality teaching and learning materials. The exact choice of instructional design models helps us to match the right process with the right situation. Finally, instructional design models are regarded as a valuable source for conducting instructional design research.

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