4-10-2019

An Instructional Design Primer

Rob Wood
Franklin University

An Instructional Design Primer

April 10, 2019 | By Rob Wood
Instructional Design

Much has been written in this forum about instructional design; however, for some followers, the primary concepts and principles of instructional design may yet be relatively new. The goal of this post is to provide a little history and a few highlights about the practice of instructional design with an emphasis on higher education.

Instructional design is a systematic approach to creating a learning intervention and/or environment that facilitates learner achievement of knowledge, skills, and abilities. It draws on a variety of disciplines including education, psychology, cognitive science, and organizational behavior. Cognitive and constructivist theories of learning and instructional design, such as social cognitivism, constructivism, social learning, and experiential learning, form the research foundations of the field.

Instructional design traces its roots to America's entry into World War II in 1941. To accomplish the daunting task of training both soldiers and civilians, the military hired many well-respected researchers who worked in teams with subject-matter experts to produce training materials (Reiser, 2001).

Following World War II, during the 1960s, Glaser, Gagne, and Finn successfully articulated the "systems" aspects of instructional design. The 1970s saw the number of instructional design models increase substantially, while the 1980s inaugurated the use of computers for instructional uses, such as computer-based instruction. Instructional design practitioners assimilated the emerging technologies of the late 1990s and early 2000s (e.g., laptop computers, smart phones, etc.), thus adding many sophisticated tools to the instructional design process (Reiser, 2007).

The field of instructional design encompasses the analysis of learning problems and the management of instructional and non-instructional processes and resources intended to improve learning and performance in a variety of settings, particularly educational institutions and the workplace. Professionals in the field of instructional design and technology often use systematic instructional design procedures and employ instructional media to accomplish their goals (Reiser & Dempsey, 2018).

A number of models describe the tasks and activities in the instructional design process that are necessary to achieve desired outcomes. A generic process, ADDIE (Analysis, Design, Development, Implementation, and Evaluation) describes activities common to many models. It describes a systematic approach to analyze learning needs—design, development, and implementation of instruction along with evaluation of assessments to determine that learning needs are met.

Research-based instructional design models include the Systems Approach Model (Dick, Carey, & Carey, 2015) and the Instructional Design Process model (Morrison, Ross, Kalman, & Kemp, 2013). While instructional design model emphases vary, most have in common the activities suggested in the ADDIE process. Gustafson and Branch (2002) provide a comprehensive review of instructional design models in their work Survey of Instructional Development Models.

One of the principal reasons for using instructional design is that it represents a set of theories and practices that enables efficient, effective learning for students regardless of the type of content. From a practical perspective, the deliberate, systematic design of instruction enables active and engaging participation and learning for both educators and students.

Branch (2018) outlined six characteristics of instructional design:

1. Instructional design is learner-centered.
2. Instructional design is goal-oriented.
3. Instructional design focuses on meaningful performance.
4. Instructional design assumes outcomes can be measured in a reliable and valid way.
5. Instructional design is empirical, iterative, and self-correcting.
6. Instructional design is typically a team effort.

Learner-centered instructional design means that learners' ability to achieve specific learning outcomes is always in view. The key to learner-centered design is focusing on what learners need in terms of instructional materials, resources, activities, and interactions.

Goal-oriented instructional design means that the learning students are expected to achieve is clearly articulated. Expected learning is defined at both a broad level (e.g., a course) and a specific instructional event (e.g., an assignment) in the form of learning outcomes that are associated with one or more assessments that measure specific elements of the expected learning. Measurable learning outcomes are at the heart of systematic instructional design. If students do not know what they are expected to learn, there is no assurance that learning will occur.

Instructional design for meaningful performance means that the instruction focuses on "…preparing learners to perform meaningful and perhaps complex behaviors including authentic performance. Learner [outcomes] are stated so as to reflect the environment in which students will be expected to apply the acquired knowledge or skill" (p. 26). Meaningful performance also speaks to the relevance of instructional materials, instructional strategies, and active learning methods that enable learners to engage in their learning.

Having measurable learning outcomes is necessary, but not sufficient—they must also be reliable and valid. Authentic assessment is the key to assuring reliability and validity. Generally, authentic assessment describes various methods used to measure learning in significant, relevant, and meaningful ways. Specifically, authentic assessment describes a category of learning measurement that is often contrasted with traditional learning assessments, such as standardized multiple-choice tests.

In terms of student learning, authentic assessment involves measuring higher-order thinking skills associated with the cognitive, affective, and psychomotor domains. Thus, measurement of learners' abilities is based on the completion of meaningful assessments that challenge them to demonstrate that they have moved beyond the simple accumulation and reporting of factual and conceptual knowledge.

Instructional design is empirical, iterative, and self-correcting. Data are at the heart of the [instructional design] process. Data collection begins during the initial analysis and continues through implementation. Guidance and feedback from subject matter experts ensures the accuracy and relevance of the skills and knowledge to be taught. Results of research and prior experience guide the selection of instructional strategies and media. Data from the field after implementation identify whether the instruction is effective (Branch, 2018).

Finally, a team approach offers the best method for designing efficient, effective instruction for students. The synthesis of an educator's content expertise and an instructional designer's expertise practiced in a collaborative environment is a powerful combination for teaching and learning. An educator possesses rich experience, unique perspectives, and significant depth of knowledge in their field. An educator knows his or her learners and how to teach and successfully facilitate their learning. An instructional designer brings to the collaboration a systematic approach to course design that includes knowledge and application of adult learning theory and the experience and ability to use an outcome-based approach to learning that applies the principles of various learning theories. An instructional designer also adds value by bringing to bear his or her expertise in applying such principles as higher-order thinking, cognitive learning processes (e.g., concept learning), social cognitive theory, information processing, and behavioral theory, among others (Wood, 2005). A successful, collaborative design effort between educator and instructional designer ensures that course content is learner-centered, meaningful, and measurable.

A legitimate question may arise in the reader's mind: If instructional design is such a valuable approach to student learning, why is it not more widely used in higher education? In fact, adoption of instructional design in higher education continues to increase as institutions discover its value and utility, particularly as it applies to designing distance education courses for adult learners.

A final important point regards the integration of instructional design into the educational process. Instructional design is intended to bring a systematic process to the table. Thus, it is not intended to replace valid educational practices but to enhance and improve the entire teaching and learning experience. The question of adoption may also be answered by observing that Dick and Carey addressed the overall success of instructional design in their discussion of why the systems approach should be used:

(The) most important reason for the success of the approach is that it is an empirical and replicable process. Instruction can be designed for on delivery or for use on multiple occasions with multiple learners. Because it can be reused with similar and scalable student audiences, it is worth the time and effort to evaluate and revise it (Dick et al., 2015).

References

Branch, R. M. (2018). Characteristics of foundational instructional design models. In R. A. Reiser & J. V. Dempsey (Eds.), Trends and issues in instructional design and technology (4th ed., pp. 23–30). New York, NY: Pearson Education, Inc.

Dick, W., Carey, L., & Carey, J. O. (2015). The systematic design of instruction (8th ed.). Upper Saddle River, NJ: Pearson Education.

Gustafson, K. L., & Branch, R. M. (2002). Survey of instructional development models (4th ed.). Syracuse, NY: ERIC Clearinghouse on Information and Technology.

Morrison, G. R., Ross, S. M., Kalman, H. K., & Kemp, J. E. (2013). Designing Effective Instruction (7th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Reiser, R. A. (2001). A history of instructional design and technology: Part II: A history of instructional design. Educational Technology Research and Development, 49(2), 57–67.

Reiser, R. A., & Dempsey, J. V. (Eds.). (2018). Trends and Issues in Instructionl Design and Technology (4th ed.). Boston: Pearson.

Wood, R. L. (2005). Quality by design: Building courses that work for learners is no coincidence. Learning Abstracts, 8(8).

About the Author

Rob Wood

Dr. Wood is faculty member at the International Institute for Innovative Instruction at Franklin University, where he specializes in instructional design.