

Chapter 22

Skills for Inclusive and Collaborative Learning on the Go

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ABSTRACT

This chapter examines selected philosophical, psychological, and cognitive theories of learning pertaining to the traditional program development, examines characteristics of current learning environment, and puts forward some educational propositions that may be of service in the global K-20 schooling. The focus is put on a need for integrative learning with an iterative model of introducing concepts and information, introduction of universal languages such as Latin, Music, and Mathematics, teaching and learning visually with the use of visualization techniques, teaching coding in various computer languages, instruction in serious gaming, inclusion of virtual reality into school environment, and teaching on the go through the use of social platforms for global exchange of thought. The proposed instructional design model focuses on developing skills that correspond to the needs and expectations typical of present-day society.

INTRODUCTION

The instructional design model presented below focuses on developing skills that correspond to the needs and expectations typical of present-day society. The learner's needs are changing with the growing impact of media. Educational technology tools support finding out interesting ways during the teaching process, which provide both teacher and students a chance to be interactive in the learning environment and to like the education. The emergence of the online, networked, interactive, visually delivered information offered by social media allows the learners to compare and contrast data. Global education has changed its meaning because of the availability, portability, compatibility, ergonomic design, and unification of various devices that are available for studying and sharing on different levels or paths. Multi-cultural communication skills can be perfected by having each person understand different cultures and ideas.

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The following text examines first the selected philosophical, psychological, and cognitive theories pertaining learning and teaching. Next, characteristics of current learning environment are discussed, and educational propositions and recommendations that may be of service in the global K-20 schooling are put forward. The focus is on a need for integrative learning, introduction of universal languages such as Latin, Music, Mathematics, and also Physics and Chemistry, thinking and learning visually with the use of visualization techniques, instruction in serious gaming, inclusion of virtual reality into school environment, and teaching on the go through the use of social platforms for global exchange of thought.

TRADITIONAL PROGRAM DEVELOPMENT AND THEORIES OF LEARNING

Instructional models are known as the main teaching approaches to be integrated in the lesson or training unit. These methods are determined by the instructional designer as expected to be most effective. Traditional instructional design models generally resulted from teaching philosophy, along with psychological and cognitive learning theories that focused on explaining how humans understand knowledge and interact with the environment. Many instructional models have been developed; they generally include identifying instructional targets, conducting instructional analysis, analyzing contexts of learners, setting performance objectives, improving assessment instruments, developing instructional strategy, developing and choosing instructional materials, designing and conducting formative evaluation of instruction, reviewing instruction, and designing and conducting summative evaluation (Kalman, Kemp, Morrison, & Ross, 2012).

Learning theories can explain the performance of a group of learners who share the same purpose or intent and who are engaged in practice; thus, they can characterize the learning by the process that impacts the same member of the learning group (Driscoll, 2017). The advent of experimental psychology brought a change in thinking about the learning process. Early psychology-based learning theories that emerged as the prevalent theories in education included Voluntarism and Connectionism developed by Edward Lee Thorndike (1874-1949) who provided a framework for experimental behavioral psychology. His *Law of Effect* and *Educational Psychology* (2017) made foundations for developing neural network models artificial intelligence, cognitive science, and neuroscience. The following text discusses theories of several innovators in the field of experimental and educational psychology: Behaviorism (Ivan Petrovich Pavlov, Burrhus Frederick Skinner, John B. Watson), Cognitive theories (Gestalt Psychology–Berlin School, Jean Piaget, Albert Bandura), and Constructivism (Jerome Bruner, Jean Piaget and Bärbel Elisabeth Inhelder).

Behaviorism

Research on instruction in the 1960s was based in behaviorist learning models (Gibson, 2004) determining how to implement a stimulus-response-reinforcement model. Hill, Song and West (2009) also reported that the instructional research was focused on the task analysis and the development of behavioral objectives for learning: identification of small incremental sub-skills and tasks that a learner needs in order to successfully complete the instruction.

Behaviorists classify conditioning into two types, classical conditioning and instrumental conditioning. Classical conditioning, originally investigated by Ivan Petrovich Pavlov (1849-1936), proposed that learning occurs by pairing two stimuli, so the new behavior is elicited after presenting only the second

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