Chapter 9
Ideas and Issues Concerning the Learning Environment

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ABSTRACT

This chapter reviews the essential features of present learning environment and puts forward some educational propositions that may be of service in schools on all levels. First, it examines the selected philosophical, psychological, and cognitive theories pertaining learning and teaching. Next, characteristics of current learning environment are discussed, and the focus is put on a need for introducing the integrative learning into the global K-20 schooling. Propositions comprise the iterative model of inducing new concepts and information into the curriculum; introduction of such universal languages as Latin, Music, and Mathematics; thinking and learning visually with the use of visualization techniques; teaching students to write codes in various languages for computer programs; instruction in serious and educational gaming; inclusion of virtual reality into school environment; and promoting an active learning through the use of social platforms for global exchange of thought. This instructional design model focuses on developing skills that correspond to the needs and expectations typical of present-day society.

INTRODUCTION

The needs of students change with the growing impact of social media. The ubiquity of the online, networked, interactive, visually delivered information offered by social media allows the learners to compare and contrast data. Global education is changing its meaning because of the availability, portability, compatibility, ergonometric design, and unification of various devices that are accessible for studying and sharing knowledge on different levels or paths. For this reason, this chapter presents an instructional design model, which focuses on developing skills needed today. Expectations typical of present-day society transform along with technology developments. Educational technology tools support finding out interesting ways during the teaching process; this provide both teacher and students a chance to be interactive in the learning environment and also to like the education. The global K-20 schooling supports students in gaining the multi-cultural communication skills by enabling each learner to understand different cultures and ideas.

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Instructional models are known as the main teaching approaches to be integrated in the lesson or training unit. Instructional designers determine selected methods as they expected they would be the most effective. Traditional instructional design models generally resulted from the concurrent teaching philosophies along with psychological and cognitive learning theories 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 FROM BEFORE THE ADVENT OF COMPUTING

Psychology-Based Learning Theories

The advent of experimental psychology brought a change in thinking about the learning process. 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). Early psychology-based learning theories emerged; the prevalent theories 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. Theories created by the innovators in the field of experimental and educational psychology included 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

Behaviorism focused on the behavior rather than the mind, and believed that learning occurs in reaction to the pairing of "stimulus and response" as well as environmental conditions (Harasim, 2017). Behaviorists asserted that learning ensues through conditioning, which is the procedure that aims to change or modify behavior via interacting with the environment. They distinguished the classical conditioning from the 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 stimulus without presenting the initial one (Pavlov, 1927/2015). Instrumental conditioning proposed that the learning process occurs as a result of increasing or decreasing behavior based on antecedents and consequences. These behaviors determine whether or not they will occur in the future (Olson, & Hergenhahn, 2010). The Freudian theory emphasized the unconscious, and presented self-report as an instrument to study the mind. Watson formulated behaviorism in contradiction to the Freudian theory (Harasim, 2017). B. F. Skinner (1953, 1971/2002) divided behavior into the response behavior associated with external action and the procedural behavior associated with