



Chapter I

Traditional vs. Cognitive Learning

Introduction

In order to help our readers to have a better understanding of the PBL process, we feel that it is important first to understand something about traditional methods of learning and cognitive learning. Since the focus of PBL is to help students to learn better, an understanding of learning itself would give a better perspective of the process in PBL. This chapter will look at traditional approaches in learning and compare them with cognitive learning. This is followed by constructivist learning, a type of cognitive learning. Several models of constructivist learning are briefly reviewed.

What is the Difference between Instruction and Learning?

While learning is defined as a change in human performance or performance potential that results from practice or other experience and endures over time, instruction refers to that which is done to help students learn (Newby, Stepich, Lehman, & Russell, 1996). In schooling, instruction and learning often go hand in hand. Instruction is often associated with teaching. It is the creation and use of environments in which learning is facilitated (Alessi & Trollip, 2001).

According to Alessi and Trollip (2001), typical instruction consists of four phases: (1) presenting information; (2) guiding the learner; (3) practising; and (4) assessing learning. In order to help students to learn better, it is important to have an understanding and appreciation of the principles of how people learn.

Traditional Teaching

Teaching has come under tremendous scrutiny by parents, students, and government lately because of widespread dissatisfaction with the results. Traditional teaching is typically characterised as didactic instruction in which information is presented to students to learn with little consideration of how that information is used. The students sitting in the classroom are passive recipients of information. The teacher is the sole information giver, undertaking lectures to a large group of students. The students are empty vessels waiting to be filled with information from the teacher. From personal experience, the authors found that most students tend to lose concentration after 15 minutes. There is no interaction between teacher and students, or between students themselves. The typical classroom resembles a one-person show with a captive, but bored, audience. Classes are typically driven by teacher talk, or as information giver, and depend heavily on textbooks for the structure of the course. It is generally accepted that there is a subject content that the students must come to know. Information is often divided into discrete parts and builds into a whole concept. The tutors' objective is to transmit their thoughts and meanings to passive students. The goal of learning in this setting is to regurgitate the accepted explanation or methodology expostulated by the teacher (Caprio, 1994).

Another problem associated with this type of learning is that students often perceive what they have learned as detached from real-world cases. This is because knowledge is often taught as context-independent. There is evidence that unless students learn something in a way that includes an understanding of its significance or function, they may experience restricted access, even when applicable situations arise (Bransford, Sherwood, Vye, & Reiser, 1986). This is generally referred to as a transfer problem or the problem of inert knowledge. It is therefore important that students are given problems to do that allow them to practice skills in environments similar to those in which the skills will be used. The learning situation should promote application and manipulation of knowledge within the context of the ordinary practices of the target task. There is a vast difference between being told about a task's relevance and actually experiencing the relevance of new information first hand. We believe that the ultimate goal of education is to help students become masters of their own learning. In most

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