Chapter 1
General Perspective in Learning Management Systems

Robert W. Folden
Texas A&M University-Commerce, USA

ABSTRACT
In order to properly understand learning management systems, it is necessary to both understand where they came from historically and the theoretical foundations upon which they are built. This understanding will allow for an effective comprehension of the elements that need to be involved in the development of these specialized management information systems that target the delivery of quality instruction at a distance. This chapter will attempt to lay that foundation. It will not cover every detail, but should provide the reader with enough background to be able to view these systems from the proper perspective.

INTRODUCTION
Before one begins an extensive study of any topic, it is to their advantage to view the topic in a general fashion. It is important to look at the historical development of the content, as well as, some the theoretical underpinnings of the subject. This helps to develop a healthy perspective for viewing the information that will be studied in depth. It can also lead one to consider those areas of greatest interest for future research. Beginning with a birds-eye view, you will not initially see the fine detail of any individual topic or aspect of the material of interest, but you will gain an understanding of the directions that impacts have come from and being able to better understand where the subject is likely to go.

eLEARNING ROOTS
In understanding any system, it is important to understand its roots (see Figure 1). As we look at the past we can understand the present and pos-
ensibly project the future (Rose, 2004). Without this knowledge, we may never understand the present and not be able to speculate effectively on where we are going (Rose, 2004). To actually understand the foundation of learning management systems, you must begin with a totally different domain of knowledge; that of psychology; most notably, educational psychology (Holmberg, 2005). One must also look at the developments that have occurred technologically (Ozkan, S., Koseler, R., & Baykal, N., 2009) (Wagner, N., Hassanein, K., Head, M., 2008). Where we are today is an outgrowth of where we have been and it is necessary to understand that path if we are to formulate a good sense of where we are going. There are multiple generations that we have come through (Taylor, 2001).

Programmed Learning/Teaching Machines

At the beginning of the twentieth century, a group of psychologists were concerned with conditioning as an explanation of behavioral adaptation. They were generally referred to as ‘behaviorists’. They believed that all behavior (learning) could be explained by the concept of conditioning. ‘Learning’, as they saw it, could be accomplished by controlling the use of stimuli and rewards, both positive and negative. An outcome of this process was the development of programmed learning tools (Rose, 2004). Initially these tools were in the form of booklets that allowed the controller to manage the stimulus by applying the appropriate reward and thus produced the desired behavior/learning. These booklets were later moved to a mechanical device or teaching machine (Rose, 2004) (Keegan, 2002). The material was presented in very small steps that were referred to as a frame. The student was then presented with a blank to fill in after which they were provided with the correct answer. In their original conception they were not officially graded or ranked, but the student worked through the material. Based upon student performance, the same material would have been repeated or new material presented. This form of instruction was very linear in nature and mastery was the end goal (Baggaley, 2008). Others provided some form of grading or required mastery before the student was allowed to progress. See http://www.greenchameleon.com/gc/blog_detail/weve_been_imagined/ for pictures showing students using a selection of these machines.

Computer Assisted Instruction

When computers came on the scene in the 1950’s (Watson, W. & Watson, S., 2007), they became the teaching machines and the process was referred to as computer assisted instruction (CAI) (Rose, 2004). The foundation of this learning was individualized instruction (Rose, 2004). The theory was that individual students needed to learn at his pace and in his way. This system was also referred to as an Integrated Learning System (ILS) (Rogers, L. & Newton, L., 2001) (Underwood, 1997). The instructor ensured the proper design of materials so logical organization allowed the student to move through the material in an appropriate manner. This process required that each student had access to a computer for the appropriate amount of time for learning to occur. Originally students used ‘dumb terminals’ attached to mainframe computers. Each student could access his or her own files with the results stored in a centralized database. In the 1980’s and 1990’s intelligent computers in the form of PC’s assumed this role (Keegan, 2002) (Eteokleous-Grigoriou, 2009). These computers were eventually connected through local area networks and had the software stored on a centralized server. Students worked in a networked environment with the instructor moving about the classroom to help the students over the difficult portions and to keep the students on task.