Chapter 4
LMS Tools and Data Analysis Approaches: Similarities and Differences

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ABSTRACT
Learning management systems (LMS) are a necessary and important tool and well suited as a learning tool and activity in higher educational. Thus, the authors allege that most of the universities these days are using the LMS tools in their institute. However, each institute has different LMS tools that allow the users (management, instructors, and students) to use them for daily activity. This chapter discusses the main usefulness tools (Moodle, Blackboard, WebCT, and Sakai) and the most useful data analysis approaches (CB-SEM, PLS, GSCA, and NEUSREL) in order to clarify the advantages and disadvantages for each of them, which gives an easier decision for managements and researchers to choose the suitable LMS tool and data analysis approach for their institute and research.

INTRODUCTION
Learning Management System (LMS) is a software that is used in administration, reporting and other training exercises (Al-Dmour, 2014). In academic institutions this chapter aims to study the LMS tools in general in order to help the managements
to select the best LMS tool for their institute. The researcher will also present the main tools and highlights the benefits and weakness area for each one of them. This chapter presents four different tools which are: Moodle, Blackboard, WebCT and Sakai. Moreover, the chapter highlights and differs the most usefulness data analysis approaches which are Covariance-based SEM (CB-SEM), Partial Least Squares (PLS), Generalized Structured Component Analysis (GSCA) and Nonlinear Universal Structural Relational Modelling (NEUSREL) in order to help selecting the best approach for the research.

A good and effective LMS leverages new ways for learning in higher education learning and professional degrees. Everything is now organised electronically and stored digitally. Innovating technology has created new flexible and collaborative platforms that enhance learning. Moodle is an example of one LMS that is spreading around the world (Ahmad, Chinade, Gambaki, Ibrahim, & Ala, 2012).

INSIGHT INTO THE LEARNING MANAGEMENT SYSTEM (LMS)

Iskander (2008) and Whelan and Bhartu (2007) identify LMS as a macro level term that refers to facilitating and managing the online learning process for all user profiles. These user types are students, administrators or instructors. The services facilitated by the LMS include interactive strategies, and organizing and monitoring control among learning groups. According to Kats (2010, p. 163), there are six tasks that are involved in an active LMS. These six tasks include:

1. **Creation**: “Refers to the production of learning and teaching materials by instructors”.
2. **Organisation**: “Refers to the arrangement of the materials for educational purpose (e.g., combining them into modules or courses)”.
3. **Delivery**: “Refers to the publication and presentation of the materials, so that they can be accessed by students”.
4. **Communication**: “Refers to the computer mediated communication between students and instructors and among students”.
5. **Collaboration**: “Refers to students jointly working on files or projects; it also includes collaboration between instructors”.
6. **Assessment**: “Refers to the formative and summative evaluation of learning process and outcomes, including feedback”.

LMSs are software that has been created to improve operations in the higher education sector. They can be used to monitor and control the learning and training conducted in any organisation (Babić, 2012). It affects societies such as Jordan
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