

## Chapter 2

# What is an E-Learning Platform?

**Michael Piotrowski**

*ZHAW Zurich University of Applied Sciences, Switzerland*

### ABSTRACT

*In this chapter, the author looks at an indispensable component of e-learning, namely e-learning platforms, i.e., the software that provides the technical infrastructure on which e-learning activities can take place. However, there is no universally accepted definition of what an e-learning platform actually is. The author analyzes existing definitions and notes several problems with them. He then proposes a new definition, which abstracts from implementation details and instead relies on the idea that there are six activities that e-learning platforms must support. In addition, the author proposes a visualization technique based on this definition, which may be applied for comparing and evaluating e-learning platforms.*

### SOFTWARE FOR E-LEARNING

E-learning relies on technology: It requires hardware, software, and network infrastructure. Most e-learning environments today are *Web-based*, i.e., they are accessed via Web browsers (using HTTP) over a TCP/IP network such as the Internet or an intranet (e.g., a university campus network).

Thus, in general, e-learning today does not have any special hardware or networking requirements: In theory, only Internet access and a computer capable of running a Web browser is necessary to access

Web-based e-learning applications. In practice, however, many applications make use of client-side scripting (using JavaScript, Adobe Flash, or Java Applets) or contain media or documents requiring proprietary software (such as Apple QuickTime or Microsoft Windows Media players for movies, or Microsoft PowerPoint for presentations). This means that a certain amount of computing power must be available and the choice of operating systems may be restricted.

An institution offering e-learning also only needs standard server hardware and Internet connectivity, both of which must, of course, be sized

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according to demand, i.e., it depends on factors such as the number of students simultaneously using the system and the type and amount of media being served.

In principle, many types of software and network services can be used for e-learning; examples include e-mail, Usenet, chats, discussion forums, wikis, blogs, collaboration (CSCW) tools, simulation software, testing and assessment software, e-portfolios, vocabulary trainers, and games.

These applications can be used individually or in various combinations for e-learning; for example, Graziadei (1996) describes a “Virtual Instructional Classroom Environment in Science” from the early 1990s based on a variety of programs and services, including e-mail, VAXNotes<sup>1</sup>, Questionmark Perception<sup>2</sup>, and HyperCard<sup>3</sup>.

However, the drawbacks of such a setup are obvious: The most serious are the lack of common user management and authentication, varying user interfaces, and limited interoperability between the tools. With the advent of the Web and the institutionalization of e-learning, Web-based e-learning platforms were created to provide a single, consistent user interface for all aspects of a course.

The functionality of e-learning platforms typically includes access to learning content and tests, communication and collaboration tools for students, and course management and assessment facilities for instructors. E-learning platforms may also include administrative functionality or interfaces to administrative systems (often called “campus management systems”) for managing student admissions and enrollment (sometimes termed “student life cycle management”), for resource planning, accounting, etc.

Numerous e-learning platforms are available today. Some of today’s most popular platforms are the commercial systems Blackboard, Clix, and Desire2Learn, and the open-source platforms ILIAS, Moodle, OLAT, and Sakai.<sup>4</sup>

The vast array of available e-learning platforms makes it difficult for institutions to select the plat-

form that best suits their needs. Furthermore, there is no single, universally agreed upon definition of what an e-learning platform actually is. This poses a problem for both research and practice: Without a solid definition, there is no objective reference framework for describing, comparing, and evaluating systems. It is standard practice in science to first define the terms and their meaning before proceeding.

Unfortunately, as e-learning is still a relatively young field of research and, as Conole and Martin (2007) point out, “not as yet a rigorously defined area” (p. 12), it has not yet developed a conventional terminology. What we currently have are numerous terms, many of which are almost—but not quite—synonymous, and which are often only vaguely defined.

Very often, we see examples in place of definitions. While examples can be helpful for illustrating a concept, they are no substitutes for definitions, as they fail to abstract from the concrete. In the case of e-learning platforms, saying, for instance, that an e-learning platform is “something like Blackboard,” implicitly compares every other platform to Blackboard, making this system the reference. In fact, Blackboard is merely an example, and it is dubious whether its features and functionality are actually those that define e-learning platforms. Working without an independent definition is especially dangerous when evaluating systems, e.g., as a basis for a decision on what system to deploy at an institution. When an evaluation is not based on sound criteria, there is a high risk that decisions are eventually made on the basis of unreasonable criteria, such as the absolute number of features or personal preferences. Before considering systems in detail, it is thus important to have, on the one hand, a clear idea of the actual requirements, and, on the other hand, a clear reference framework, so that requirements and systems can be compared in a meaningful way. When selecting an e-learning platform, the main questions are which kinds of activities are to be supported by the platform

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