

## Chapter 2

# Usability of Online Virtual Learning Environments: Key Issues for Instructors and Learners

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### **ABSTRACT**

*This chapter explores key issues in relation to the human computer interactions that are supported through Virtual Learning Environments (VLEs). It focuses particularly on the usability of online learning environments and highlights the impact usability can have on the learning experiences of users. The authors adopt a definition of usability that relates to the usability of virtual learning environments, specifically, and provides guidance on how to assess the usability of VLEs by offering the Multidimensional Usability Model (MUM). The MUM model is designed to identify the factors that can form technological barriers to effective Human Computer Interaction (HCI). This chapter also offers an evaluation of the theoretical frameworks, criteria, and methodologies currently available; these draw on research findings from a case study focused on the usability of an existing VLE and give practical examples of the MUM approach to usability.*

### **BACKGROUND**

#### **What is a VLE?**

Before we can consider the usability of Virtual Learning Environments (VLEs), it might be helpful to provide a definition for VLE. The term

VLE is often interchangeable with the term Managed Learning Environment (MLE), and for the purposes of this chapter, there is an intension to clarify the distinction between the two by adopting the British Educational Communications and Technology Agency definition of an MLE as incorporating:

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*“The whole range of information systems and processes ... (including its VLE) that contribute directly or indirectly to learning and learning management’ so ‘in effect, an MLE might consist of a whole range of different software and systems that interrelate, share data and contribute to learning management’ whilst ‘VLE refers to a specific piece of software that enables learners and staff to interact, and includes content delivery and trackin” (BECTA, 2000).*

If we will concentrate specifically on VLEs as the focus is on the student learning experience rather than the administrative systems that support learning. We have adopted the United Kingdom’s Joint Information Systems Committee (JISC), definition for VLEs as referring to the components in which learners and tutors participate in online interactions:

*“The requirements of a VLE are to control access to curriculum and learning resources, the tracking of student activity and achievement, the support for on-line learning, the recording of assessment and the use of communication tools between participants to build a sense of group identity and community of practice” (JISC, 2002).*

Britain and Liber’s (1999) work has helped to outline the definition further by listing the principle tools of a *prototypical* VLE as including the following:

- Notice-board
- Course outline
- E-mail
- Asynchronous and synchronous communication tools
- Class lists and student homepages
- Assignments and assessment tools
- Calendar
- Collaboration tools
- File sharing and upload area
- Access to multimedia resources

## Defining Usability

My research work into the ‘usability’ of VLE’s, has concentrated on an educators’ perspective instead of a technologists approach. It has been found that usability can have a significant impact on learning, retention rates, and learner motivation, and it can play a key role in enhancing the positive learning experiences of students using VLE’s. One of the main purposes of this chapter is to provide the reader with practical guidance on how they might apply a simple model to test the usability of a VLE and identify adjustments that might be made in order to make interfaces easier to use and learn and meet the specific needs of their students.

Perhaps before we explore the concept of usability further we should attempt to offer a definition of usability. There are as many definitions of usability as there are academics writing on the concept and it can be confusing. Perhaps a starting point is an original definition offered by Jenny Preece in 1994:

*Usability is “a measure of the ease with which a system can be learned or used, its safety, effectiveness and efficiency and the attitude of its users towards it” (Preece, 1994).*

We can consider this definition a helpful starting point, as the approach puts the learner at the centre of the design and evaluation process. However, in 2000, Preece (2000) developed her definition further to take into account the advent of VLE’s and computer mediated conferencing tools, she defined usability in the context of online learning communities suggesting that:

*“Software with good usability supports rapid learning, high skills retention, low error rates and high productivity. It is consistent, controllable and predictable, making it pleasant and effective to use” (Preece, 2000).*

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