Chapter 20
Lecturing Tomorrow:
Virtual Classrooms, User Centered Requirements and Evaluative Methods

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ABSTRACT

This chapter presents a survey methodology addressing learners' requirements, their expectations and experiences regarding challenges in the implementation process of new educational technology in educational institutions. The presented methodology was devised and applied during the pilot use of a web conferencing system (in its educational form as a virtual classroom) in distance education, and combines the evaluation of usability, acceptance and expected benefits in order to generate statements and to substantiate decisions on educational technology at an early stage of its institutional introduction. The methodical procedure, survey instruments and results from its exemplary exertion are described. The overall objective of this chapter is to prove the appropriateness of this multi-perspective and user centered approach towards the examination of utility, resulting in a pragmatic and transferable tool for the evaluation of the three named factors.

INTRODUCTION

There is no question that information and communication technologies as well as multimedia are a growing part of today's higher education, especially in distance education. Traditionally focused on asynchronous communication based on printed material or on online tools, the possibilities to interact with tutors or peers in distance education are limited, since the people involved in teaching and learning are usually located far from each other. In distance education, learning instructions are given for the most part asynchronously by letter post or through the internet. This allows for the main advantages of distance education, i.e. the learners' independence in space and time, but provides for several problems

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for learners that are characteristic for distance education, like isolation, inactivity, high dropout rates due to frustration and the lack of motivation to continue studying. Based on the emergence, the development and the widespread use of new communication and collaboration technologies, leading up to applications and services of Web 2.0, it is possible to address these problems and develop and implement more interactive virtual learning environments. These educational settings for distance education include features oriented at conventional pedagogy, such as online assessment, user feedback or learning communities, formerly attributed to conventional education only.

Along with the diffusion of applications and services of Web 2.0, complemented by mobile and ubiquitous computing, synchronous online collaboration becomes an application of computer-mediated interaction ready for everyday use and available for (almost) everybody. Virtual worlds that enable the interaction of users controlling avatars in three-dimensional environments, like common massively multiplayer online games or Second Life, are quite inventive applications and undoubtedly promising for educational use. However, along with these prominent and futuristic technologies, synchronous online collaboration using advanced web conferencing systems develops from invention to innovation and diffusion. This means that synchronous communication and collaboration via the internet is steadily spreading in the workplace as well as in private use and is being increasingly implemented in education – not only in projects of design and development, but meanwhile also for regular and widespread use in educational settings.

On that basis, in this chapter we chose web conferencing systems in their educational form as virtual classrooms as an exemplar for considerations on user centered requirements and evaluative methods in the process of implementation of new educational technologies. In order to examine user centered requirements, we devised a pragmatic and transferable tool for evaluating expectations, needs and experiences of users at an early implementation stage of a new and emerging educational technology. The overall objective of this chapter is to prove the appropriateness of this survey methodology combining the evaluation of usability, acceptance and expected benefits during the pilot use of a new educational technology. In this context, the main research question of this chapter focuses on a learner-driven view with the intention of examining what features of new technology in educational settings provide real advantages, and which features may simply add to the complexity of interaction, thus distracting attention and cognitive capabilities. The survey methodology presented here is intended to generate statements and to substantiate decisions on new educational technology in an early stage of its institutional introduction and should allow for a transfer to other areas of technology enhanced learning.

To address the described purpose of this chapter, Section 2 will start with a brief overview detailing functions, main characteristics and possible educational scenarios of implementing virtual classrooms in distance education and responding to the question of why virtual classrooms should be implemented, using this as a paradigm for the diffusion of new educational technology in educational institutions. After defining the concept of the virtual classroom in education and describing opportunities of implementing virtual classrooms, the impact of three different but interrelated learner-based variables of usability, acceptance, and expected educational benefits on the effectiveness of virtual classrooms in distance education are explained in this section. Section 3 will explicate the survey methodology itself. The report on a survey during the pilot use of a web conference system at the FernUniversität in Hagen illustrates and substantiates the description of the methodical procedure and the survey instruments. For completeness, the results of this exemplary study investigating promising and critical aspects of usability, acceptance and expected benefits