Chapter 16
Psychological Factors Influencing User Acceptance and Usability: Lectures and Information Communication Technology

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ABSTRACT

Information and communication technologies allow the transmission of audio and video signals in real time, making meetings and interactions with people in remote locations a possibility. For institutions offering education in multiple geographic locations there is a real opportunity to interact with students in a virtual teaching space that supplies text, audio and visual cues. However, technological capability can outstrip availability and adoption. This chapter considers the psychological factors influencing usability and user acceptance of educational technology and associated implications for learning and evaluation. Preference for and effort devoted to educational media may be a function of personality. Preference for online or text-based education may be a function of introversion, and time spent away from study may indicate extraversion or procrastination. Using student surveys, willingness to engage in videoconferencing or to use mobile phones to support teaching and learning was explored. Within an ergonomic framework the authors detail human factors relevant to the use of videoconferencing and mobile phones to support lectures to remote locations.

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INTRODUCTION

All too often ‘cool’ technology is chosen for use in teaching and learning either because it can be done, regardless of benefit, or because it may make an institution feel they are keeping up with the technology in today’s society (Caudill, 2007). In the present chapter, we primarily discuss the use of technology to augment existing traditional teaching strategies (Annand, 2007), although our university also engages in online teaching. The emerging capacity for computers to mediate communication and support cooperative work (Greenberg & Marwood, 1994; Roseman & Greenberg, 1992) potentially means a greater access to systems allowing users in remote locations to communicate via text, audio and video, share virtual whiteboards and view files together. This chapter outlines some problems and challenges associated with the use of information communication technology to support teaching. As a case study to document decision-making processes at an Australian university, this chapter supplies some of the context associated with decisions to use technology to support teaching. Specifically, it addresses the use of computer supported cooperative work software and mobile phone technology to deliver lectures and support teaching to remote locations. Specific emphasis is given to the psychological factors influencing usability and user acceptance of video-streamed lectures. The psychological theory developed in this chapter is intended to assist in the interpretation and evaluation of such teaching endeavors and aid in the justification and implementation of such projects. As will be outlined, there are individual differences in preferences for virtual social interactions, and there are indications that people perceive and value virtual interactions differently to face-to-face interactions.

Our interest in this technology arises from organisational developments. Our staff are engaged in a variety of teaching modes over a number of geographical locations. We teach on-campus in face-to-face classes and offer off-campus modes, with students having face-to-face classes on one weekend. We have offered a mixture of these two modes, while also offering classes to adults (open learning) and high school students (enhancement). Our staff now commute to remote campuses to give the same lectures up to four times. At some campuses, student numbers (or student attendance) barely warrant the presence of a live lecturer, but in psychology we are unable to teach in a completely electronic mode for a variety of reasons. Psychology is a practical discipline and funding levels are linked to the delivery of laboratory classes. The accreditation of our off-campus mode was in part linked historically to face-to-face weekend sessions that authenticated the students we taught. In addition, students on minor campuses have campaigned for face-to-face contact.

Staff members have managed this inter-campus cooperation by way of ‘work arounds’ that rely heavily upon communication technologies such as email and surface post. However, there is a very real need for technology to increase the ‘reach’ of staff members. Hence, our information technology committee has a role advising management as to technologies that will serve its needs, and, where expenditure is required, to justify the expenses. As our school is a ‘people’ discipline, there is also a reasonable expectation that we understand the factors underpinning the uptake and effective use of technology. And as we are based in psychology, rather than education, sociology or information technology, our approach has necessarily been coloured by our initial background.

As a possible starting point, the examination of Human Factors and Ergonomics can assist with the evaluation of the usability of technologies (i.e. human machine interaction). However, previous research lacks understanding of technologies that seek to enhance human to human interaction. For instance, conventional ergonomics texts (e.g. Wickens & Hollands, 2000) do not devote a chapter to the topic (but see Wickens, Gordon, & Liu, 1998). More specifically, there has become