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The Need For Rules: Determining the Usability of Adding Audio to the MOO

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Abstract

This usability study assesses the impact on user experience when audio is added to a text-based MOO classroom in a large distance learning Ph.D. program. We found that the addition of audio to this text-based, synchronous classroom enhanced the user experience, but this enhancement was impacted by the control and structure of information and conversation flow, instructor leadership and modeling, and the need for time and support to learn the technology. It also fostered a greater sense of social connection between instructor and students as well as student to student. We found that limitations with adding audio to this environment included trouble with identifying speakers and users having difficulty managing multiple conversations through multiple channels. Additional benefits identified by participants included quick responses to calls for help or clarification, the comfort level of audio communication in general, and the ability to expound on a particular issue in greater detail.

Keywords: Usability testing; synchronous online learning environment; Web-based distance learning; synchronous distance learning; text-based distance learning environment; audio in online learning; text-based synchronous online learning environment; MOO-based distance learning; computer-mediated communication; usability testing; community formation; electronic communication

1. Introduction

Distance education has grown substantially in recent years. The number of students taking at least one course online has grown from 1.6 million to 4.6 million since 2002 (Allen & Seaman, 2010, pp. 4-5). Overall, online enrollments are seeing a 17 percent growth rate, which exceeds the overall growth of the 1.2 percent higher education student population (Allen & Seaman, 2010, p.1).One result of this increase in online enrollments is that more and more, teachers are being asked to develop and deliver online courses. These new responsibilities prompt questions related to course delivery methods, student learning styles, costs, and overall effectiveness. And although a growing body of research

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helps shape and direct the future design of online distance courses, educators continue to face these questions while striving to find the right mix of tools for their particular teaching situations and the individual learning needs of their students.

The existing scholarship on asynchronous and synchronous online learning environments is robust, but none of the current research focuses on how synchronous audio, used in conjunction with synchronous chat, affects students' perceptions of their learning experience. The results of the usability study presented in this paper extend previous work by centering on students' perceptions of using audio along with a more traditional text-based environment. Findings from our study suggest that the addition of audio to a MOO classroom (a classroom situated in a text-based synchronous online environment) generally enhanced the users' experiences. The benefits included opening multiple channels for communication to increase understanding and improving interpersonal communication among the participants. These findings are not without certain qualifications—including the need to overcome the learning curve, establish rules of use, and provide instructor leadership—but our study participants expressed a willingness to work through technical and interpersonal issues associated with the addition of audio, which suggests that with proper management, the advantages outweigh the disadvantages.

2. Background

Educators have been interested in using synchronous, text-based MOO environments for teaching online courses for a number of reasons, including concerns about whether course delivery methods matched those available to students who may not have access to high-bandwidth Internet connections (Jones, 2008, pp. 52-53) and the fact that the software is free, the system setup is minimal, and the bandwidth requirements are low (Chester, 2006). Several studies, however, have indicated a need for multimodal online educational environments in order to accommodate different student needs and learning styles. Joyce Locke Carter and Rebecca Rickly (2005) emphasize the need to bridge gaps in communication between student and instructor and note the importance of considering learning styles while "minding the gaps" due to the physical constraints that can result in slower learning acquisition through distance education (p. 133). Stein, Wanstreet, Calvin, Overtoom, & Wheaton (2005) used the theoretical framework of transactional distance to explore gaps between the structure of online courses, the communication between student and instructor, and the students' self-motivations toward learning. They found that high structure and increased dialogue decreased transactional distance and increased student satisfaction with perceived knowledge acquisition. Mahnaz Moallem (2007) found that another way to bridge such gaps is to use tools that respond to a range of learning styles. According to Moallem, "learning styles can be integrated into instruction in online learning environments without compromising the appropriateness of instructional strategies for specific content and learner outcomes" (p. 239).

One multimodal approach that scholarship on distance education explores is the addition of audio to text-based online environments like the MOO. Li Zhang (2006) argued that audio can be used as an "alternative channel for communicating with students, especially for those having difficulties in reading text on [a] computer screen" (p. 301). Kendall W. Hartley (1999) suggested that audio may be under utilized for instructional materials, perhaps because audio is difficult to incorporate into the online environment (1999, p. 149). NadaleenTempelman-Kluit (2006) described the relationship between working memory and dual-communication channels. She argued that providing visual and verbal information simultaneously can lead to meaningful learning resulting from the two processing channels enhancing both recall and recognition (p. 366). Elizabeth Murphy and Justyna Ciszewska-Carr (2007) examined text-based chat plus audio from the perspective of instructor preparation and the relationship of technology to pedagogy.

Having multiple simultaneous media channels, such as audio and text, may increase user satisfaction with a learning environment, but existing research into multimodal online environments has not addressed the need for the continuous evaluation of technologies from the student point of view. Two separate studies (Rubens & Southard, 2005; Carter & Rickly, 2005), however, indicate that gauging how students will respond to any particular combination of technologies requires continual testing and evaluation. Miller-Cochran & Rodrigo (2006) also have argued specifically for the applicability of usability studies to empirical research in distance education (p. 92). Their usability study of multiple versions of an asynchronous online course found that usability testing complicated instructors' ideas about what students did first in an asynchronous course site and how students used the site (pp. 99-100). They also concluded that usability testing principles developed for industry do apply to student satisfaction with web-based online courses (p. 105). There is much yet to be learned about the use of audio in synchronous online distance education in general and the MOO environment in particular. This paper addresses part of that research gap. The usability study described in