

Chapter 9

Building Bridges: Combining Webcasting and Videoconferencing in a Multi- Campus University Course

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ABSTRACT

Supporting lifelong learning can be challenging in that participants are often geographically distributed, have significant time constraints, and widely varied skills and preferences with regard to technology. This creates the need for designers to support flexible configurations of systems for delivering content, in ways that still allow for meaningful learning and instruction to take place. In this chapter, the authors present a case study of experience in offering a university course using a novel system that bridges videoconferencing and webcasting technologies. These have historically been separate. Webcasting scales easily to accommodate large audiences, but only supports one-way transmission of audio and video. Videoconferencing allows for two-way interaction in real time, but uses more bandwidth, and does not scale as easily. Our system allowed for increased participation in webcasts, which had benefits for both

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instructors and students. This chapter presents an analysis of interaction and awareness in distance learning contexts, and concludes with design principles suggesting that designers of future systems focus on: (1) developing novel displays and visualizations for presenting information about students, (2) reducing inequalities between modes of participation by making it clearer when, say, questions are asked by text or who is speaking when there are multiple images displayed, and (3) accommodate a range of student preferences and capabilities by supporting multiple modes of presentation.

INTRODUCTION

Lifelong learning presents many challenges to both curriculum and technology developers (de Freitas, et al., 2006). Namely, lifelong learners are different from traditional students in that they often have many career and family responsibilities, so cannot relocate or focus on education full-time. Moreover, they are often at varied life stages and have varying levels of educational background. As such, there is utility in exploring novel ways to deliver educational content to geographically distributed groups of diverse individuals.

One way to achieve this is to broaden access to existing educational opportunities to include lifelong learners who might not otherwise benefit from them. Indeed, there is considerable interest in the use of e-learning technologies to increase access to education (Serif, et al., 2009; Shea, Picket, & Li, 2005). While some universities have invested in the reshaping of existing courses and curricula for novel online learning environments (Bourne, 1998; Hazemi, Hailes, & Hailes, 2002), many have also sought to leverage existing resources by broadening access to courses already being offered on campus (Anderson, et al., 2000; Cogburn, Zhang, & Khothule, 2002; Shea, et al., 2005). Lecture-style presentations are common on university campuses (McKeachie, 2002; Bligh, 2000) and it has been said that they “serve good students well and can function as effective learning events for many” (Allert, 2004). Given that they are already being presented to large audiences, lectures are an easy opportunity to make educational content available to lifelong learners

participating from home or other remote locations – the content need only be captured and streamed.

Serif et al. (2009) describe a range of strategies for delivering e-learning content to geographically distributed groups, including scenarios where small groups of participants gather in a shared physical space to join a larger remote group, as well as those where participants join in from home. The authors suggest that content can be delivered to these types of participants via webcasting and conferencing technologies, but treat these largely independent of one another.

Webcasting uses media streaming technologies to allow for live one-way audio and/or video presentations to large, geographically distributed audiences (Baecker, 2003). One-way streaming means easy scaling to accommodate very large audiences (Weinstein, 2005), and that barriers to access are low – only a PC with a dial-up modem and a web browser is required for basic performance. One drawback, however, is that most current webcasting technologies (e.g., Accordant, Adobe Connect Virtual Classroom, etc.) do not facilitate natural two-way interaction between the presenter and remote audience members during a webcast. Instead, systems treat webcasting as a one-way presentation that is distinct from a more interactive format.

In this regard, webcasting stands in contrast to videoconferencing, which allows for real-time interaction via rich media. While this is useful in facilitating interaction, multi-point conferencing requires substantial bandwidth and does not easily scale to accommodate large numbers of simultaneous remote participants using basic hardware

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