Chapter X
Real-Time in Cyberspace:
Effective, Live Synchronous E-Learning

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ABSTRACT

Using live, synchronous time effectively in an instructor-led e-learning course requires a clear understanding of the dynamics of real-time, live interactivity. Synchronous interactivity enables live learning, demonstrations, collaborations, lab simulations, human-driven simulations, desktop simulations, live multi-data-stream events, and plenty of valuable learning and training. These may include webinars, online conventions, chat sessions, interactive television, and interactive lectures in CTE. These synchronous events may be non-human-facilitated or human-facilitated. To maximize synchronous time requires pedagogical preparation and the training of participants, setting the pace, troubleshooting technological challenges, and striving to create accessibility pre-, during- and post-event. This chapter will address some strategies for using live sessions in career and technical education to optimize the synergies of real-time.

INTRODUCTION

Of the many benefits of e-learning, the convenience of asynchronous interactions and learner time flexibility is a major one. Yet, as technologies have evolved, e-learning now includes more real-time synchronous learning, a shared moment in the temporal continuum in shared virtual "space". Virtual classroom interactivity involves real-time audio and video interactions, live annotations, the real-time sharing of pre-scripted digital learning objects, remote sharing of participant desktops, shared voice and audio, and real-time text chats. Synchronous interactivity may be achieved through ambient intelligence spaces, augmented reality, augmented virtuality and ubiquitous mobile learning (m-learning).

Live interactivity is used in many ways in career and technical education (CTE). First, it makes the subject matter expert (SME) or facilitator more accessible. It engages a familiar way of learning and interacting, in real-time, without delay. This

adds a live aspect to the learning (Jakobsson, 2006, p. 388). Synchronous office hours enhance the accessibility of the instructor (Wang & Beasley, 2006). Ad hoc diagrammatic explanations may be offered via whiteboards, pen-tablet interfaces, or other interactive visual hardware and software to aid in learner visualization; these may be fresh and not pre-fabricated depictions (Boyd, 2007, para.1). Real-time assessments may be made and shared, and negotiated strategies to address these may be discussed—for personalized and consensual assessments. Participants may also be made more accessible and present. With rich human interactions, it may be somewhat easier to address misconceptions right after they're expressed than to try to address them later.

Second, unique events may be shared broadly, with a kind of experiential, cognitive and affective "co-location" in time (but not space). Lab demonstrations, dissections, and simulations have been shared with a variety of learners through interactive television or video. These events may involve a high level of communications. Real-time human-facilitated events include webinars, online conventions, debates, mock courts, interactive lectures, role-plays, and panel discussions. These may involve an organic serendipitous aspect of human interactivity, with ideas, personalities, and emotions sparking off each other for new ways of seeing, doing, making, and thinking.

Third, live collaborations may be enhanced. Groups, sometimes entering the training as colleagues in a cohort, have met and collaborated on various designs, event plans, and course projects using voice-over-IP, live chat, and other real-time technologies. Information-rich technologies enable computer-mediated collaboration, such as concept mapping (Kim, Yang, & Tsai, 2005). Foreign language learners may practice over synchronous voice and video chat. Immersive game spaces involve quasi-live human interactions through avatars and real-time communications. Some live events may be delivered to a mass online audience, with only one-way communications. Some shared activities may involve an intelligent narrative learning environment to engage participants "in active exploration of the narrative by placing them in the narrative's setting and in characters' roles. These forms of exploration can help learners create meanings from the narrative" (Walker, 2004, p. 55).

Such collaborations may bring together virtual communities. Live events increase a sense of human presence and the human touch. There are platforms for live, mobile television services with interactive capabilities (Schatz, Wagner, & Berger, 2007). A continuous learning environment (CLE), online learning environment (OLE), or network / community of practice (NoP, CoP) may feature live facilitated social events.

Fourth, individuals may practice coordination for live, real-time events. Live desktop simulations with unpredictable incoming information have enabled emergency first responders to coordinate their efforts with each other. Live data streams (from sensors, from satellites) are fed into e-learning systems for real-time simulations, for augmented virtuality. Biosecurity networks of individuals may simulate "chain of custody" and "chain of communications" endeavors for the maintenance of safety along with effective decision-making and responsiveness.

Fifth, decision-making may be made more efficient. Quorum-sensing may be achieved through mobile ad-hoc networks (MANETs) in ambient space (Peysakhov, et al., 2006, p. 1104). Live votes may be taken and acted upon in some virtual classroom systems. Decision systems offer just-in-time learning and live decision-making through automated means, whether through computers or mobile devices or cell phones. Scenarios may be captured in real-time through live tele-monitoring. Learners may have an enhanced sense of participation in live events. Synchronous events may be designed to be emergent and evolving; here, participants have a direct say in how the event proceeds. Their contributions will be written into the flexible fabric of the learning.