Internet-Based Classes and the Paradox of "Seat Time" in Graduate-Level Engineering Management Classes: Some Proposed Solutions

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Abstract

Can pedagogical techniques developed for Internet courses be integrated to enhance "live" classes, and what impact might this have on the "seat time' requirements of those live classes? Electronic technologies are rapidly altering the nature of university-level classes. These changes challenge accepted standards of what constitutes a "class" and its value as expressed in credit hours. Connect time for an Internet course does not equal seat time when most of the work is done offline and asynchronously. We believe that the arbitrary "seat time" requirement for live classes has lost its utility when the live portion of the class can be appropriately complemented with pedagogical tools developed for Internet courses. Using new teaching tools should permit enhanced student outcomes with less "seat time". We propose an ongoing discussion of the paradox of requiring "seat time" in an era of revolutionary opportunity to enhance pedagogy.

Text

The modern university has emerged from its cloistered past and now takes its place in the world as an institution without walls. Bok[1] suggests that by the end of World War II, the image of the ivory tower was obsolete and the university was linked to major institutions in society. In his now-classic description of the modern “multiversity”, Kerr[2] describes the role of the university in “life-long learning”, declares that the “boundaries of the university are stretched to embrace all society”, and is prophetic in his statement that the university can “reach into literally every home”. As society became more urbanized and higher education became more of a necessity for advancement in the workplace, new delivery systems had to be developed. The history of distance learning can be traced back more than a century and during this period a variety of delivery methods have been employed by institutions in distance learning, such as, broadcast and cable television, cassettes, computer based materials, and E mail and Internet.[3] Online delivery of instruction is a logical extension of the university’s mission. A number of factors make the online option attractive; these include competition in higher education, technological

advancement in computers and telecommunications, growth in demand from non-traditional students, and the potential for cost advantage. Furthermore, Oblinger et al.[4] state that "Distance education and on-campus instruction are converging, with online delivery systems and approaches being employed for distant, commuting, and residential students."

There are many issues central to the current transitional period, and many assumptions that characterize our current system of higher education. However these assumptions "may not apply to distributed learning. Many of our current policies, organizations, and definitions are either inadequate or inappropriate for distributed learning. The notion of credit for seat time has sustained our current model for higher education, but will it suffice for a future represented by distributed learning?[4]". Our experience in teaching graduate-level engineering management classes suggests that the integration of pedagogical techniques appropriate for online courses into live classes is being impeded by the increasingly archaic but jurisprudential tradition of seat time. One cannot assume that the format used in a traditional method of teaching such as lecture can (or should) be duplicated in an online course. Lecturing as a teaching method has been around since ancient times and still today a great deal of teaching is done by lecture. The Willcoxson study concluded that lecture can provide the means to transfer knowledge and information to learners and the learners show desire to learn, but learners (students) have shown little interest for their lectures[5]. In addition, lecture causes that student becomes a passive rather that an active learner. The web-based course requires unique strategies. "There is a growing body of evidence that, owing to the ability to create customized learning environments on the web, distributed education is more effective than the classroom lecture…"[4]. Conversely, techniques successful in online classes may not effectively transfer to live classes. The traditional methods of delivering information and instruction to learners are inadequate and may not best serve the students[6]. Therefore, it is important to integrate other means of instructional delivery with the traditional methods. For example, the Internet can be used to enhance learning in live classes by literally giving the learners access to the world of information. In an empirical study "Lecturing versus self-study" Lahidji concluded that neither lecturing nor self-study is the best method of teaching and learning. Each technique has its positive and negative aspects. Therefore, either approach should be supported by the other technique, such as interactive learning and integrating of information technology in the class activities[7]. Also, ongoing research suggests parity in student achievement when comparing online to live classes. An experimental study by Schulman and others concluded, the learning of online students is equal to the learning on in class students and the pre test grades indicated that the online students were better prepared for the course than the in class students[8].

However, when online pedagogical techniques can enhance live instruction, their implementation may be blocked by the seat time requirement. Students cannot be engaged in exploration of web resources or electronic collaboration when they are tied to a university-defined class schedule of lectures. Institutions are lagging in developing effective means of accommodating asynchronous activities into the dysfunctional "education as banking" paradigm described by Freire[9]. Freire critiques a system in which

students come intellectually bankrupt to lecture and have their bank accounts “filled up” by the sage words of the faculty lecture. They can later disgorge or “spend” their “capital”, which is essentially rote-learned information. Online, students are, to a much greater extent, self-directed and able to collaborate with other students in the learning process. The nature of online courses allows students to be active rather than passive, express themselves more freely[10] and provides greater interaction among students and between students and instructor [11]. In a research paper entitled “ Teaching college courses online vs. face-to-face”, the authors interviewed instructors who had taught courses both in a web-based and face-to-face format, and presented the following points:

1) some instructors felt they were not able to use their teaching skills, such as oral skills, to improvise the educational opportunities as one is able to do in live class;
2) online-based courses seem to provide greater opportunity to the students to express their thoughts more freely and participated more in class discussion than in live class;
3) students are less intimidated to challenge the professors in online courses; because online courses are highly text-based, they can demand deeper thinking and be more intellectually challenged than face-to face courses[12].

Guidelines for regional accreditation states that online courses shall be comparable to campus-based programs[4]. Online courses must have measurable outcomes but no seat or connect times. Comparable campus classes have identical measurable outcomes but quite rigid seat time requirements. A cursory literature review of academic databases resulted in finding no meaningful discussion of this difficulty: can the official seat time requirement be altered to accommodate new learning techniques? Using teaching tools developed for use in web-based classes should permit enhanced student outcomes with less "seat time". We have used a variety of techniques in web courses, which are readily transferable to live classes. Threaded discussions allow students to engage in class-related discourse and, as the research indicates[10], participate at a much higher level than in live classes. Our experience is that students who are unlikely to speak out in class are quite willing to share their thoughts in the online threaded discussion. This also makes it simpler for the instructor to assess levels of participation for grading purposes. Tools such as web caucus and document posting permit students to share work and critique one another’s work. They can also view a variety of problem solutions in quantitative classes. Electronic coursepacks can augment texts and other materials. Our university library provides this useful web-based service free of charge to students. The online syllabus can contain embedded hyperlinks to Internet resources useful for student research and a real help in bringing in the non-academic world. The web-based course can help students with e-mail to the class or to their teams within the class. Computer-based simulations (when software licensing issues are resolved) can yield learning opportunities otherwise available only in the university computer lab. We have assigned electronic group presentations in which teams of students present to the rest of the class using multimedia slide shows and will, in the near future, incorporate video. Examination software can be very effective and helps deal with the issue of the integrity of student work. Assigning electronic journals, which are posted by the student but only read by the instructor can be an invaluable mechanism for gaining student feedback. These and many other web-based tools can be integrated into live classes.

The pedagogical approaches to live and online classes were once distinct but are increasingly convergent. Our university provides free e-mail to all students, multiple computer labs on-campus, and free dial-up service off-campus. Most of our engineering management graduate students are employed full-time in industry and have web access at work as well as at home. Web access is essentially universal among these students. Web-based pedagogical tools are provided to faculty for use in live classes free of any charge to students. Classes are offered both live in the Detroit metropolitan area and online. We contend that discussions such as this paper will help further blur the line between live and online classes. Socrates lectured some 2500 years ago, we lecture today. Isn't it time to consider incorporating new teaching and learning tools?

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