

Advances in Hospitality Education: Courseware, Audiographics, and Cyberspace

by
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Technology will play an increasingly larger role in the education of students within the hospitality curriculum. There are a significant number of emerging educational technologies aimed at changing the delivery of the entire curriculum. The development of technological platforms for multimedia instructional courseware, distance learning through audiographics, and virtual reality simulation are expected to alter and enhance the learning process while extending the boundaries of the traditional hospitality classroom.

In the past, hospitality educators have struggled to modify generic software or adapt vendor-designed industry systems as a means of bringing hospitality information systems to the classroom. While portions of the hospitality curriculum will continue to make computers the focal point of instruction, there are a significant number of emerging educational technologies aimed at changing the delivery of the entire curriculum. It is anticipated that at least some portion of the curriculum will be delivered with the aid of a computer system.

Instructional software, also referred to as courseware, is aimed at improving student qualitative and quantitative skills (e.g., critical thinking) through a series of exercises involving industry specific problems. A major objective involved in the implementation of courseware is to help students understand classroom delivered information in terms of real-world application. The fact that students each receive their own unique set of data tends to encourage them to take the work more seriously and to strive to compete against the computer. Developments in audio and video interactivity have extended the capabilities of courseware and led to the advancement of multimedia courseware, which appears to have the potential of providing students with a level of educational involvement and feedback unavailable through alternative electronic formats.¹

The future of hospitality education may well depend upon the design, implementation, and administration of distance learning,

which enables schools to offer curriculum to geographically dispersed areas and can be produced to appeal to non-traditional students in an off-campus environment. The challenge of student motivation at remote sites is being addressed through the implementation of audiographic technology, which enables two-directional classroom participation with a high level of student/instructor interaction.²

Advanced technology applications have enabled the application of virtual reality into simulation exercises. Virtual reality is the term used to describe a simulated environment wherein students have an opportunity to experience and affect changes.³ It may be the means by which hospitality education addresses the varying levels of experience and capabilities students bring to the classroom. With virtual reality applications, teaching need no longer gravitate to the middle or lower classroom learning level. Involvement with a virtual reality environment (cyberspace) allows each student to make decisions and to learn of the consequences of those actions in a real-time environment.

Educational Technology Benefits the Individual

The field of educational technology involves integrating the science of learning with the art of teaching by providing a learning process oriented to the individual student. The principal role of educational technology is to help improve the teacher/learner process.⁴ In education, efficiency can manifest itself in many ways, including increasing the quality of learning, or degree of mastery, decreasing the time taken for learners to attain desired goals, and increasing the capacity of educators in terms of numbers of students taught, without reducing the quality of learning.⁵ The goal of an effective technological application is to satisfy each of these dimensions while enhancing the teacher/learner experience.

Computer-based instructional applications can be divided into three application areas: drill and practice, tutorial and dialogue, and simulation and games.⁶ Drill and practice sessions involve computer programs which provide repetitive opportunity for students to pair stimuli with appropriate responses. Tutor applications deal with computer programs which provide most of the instructional events, while simulations provide an experience designed to give an illusion of reality.

Traditionally, the principal role for computers in education has been in the area of drills and practice.⁷ Some of the educational software currently available for hospitality classroom use is based on the behavioristic paradigm which views learning as a matter of establishing connections between stimuli and response (drill and practice). Drill and practice software tends to provide a simplistic level of learning without emphasis on development of problem solving skills.⁸

In tutorial applications, the computer carries the instructional burden of guiding a student to the achievement of a specified set of objectives. In tutor applications the computer performs a teaching role by presenting information to the student and seeking a response. In turn, the computer evaluates the student's response

according to specific criteria and then determines what to do next. In a tutorial lesson, courseware must be interactive and sensitive to the needs of the learner. The responses elicited need to be directly related to the skills to be learned. Courseware designers tend to rely on an instructional algorithm involving a simplistic sequence in which new information is presented, questions posed, and response evaluated.⁹ If the student response is incorrect, the algorithm directs that the identical question be repeated with optional help or remediation available on-line.

A simulation is a representation or model of some real object, system or phenomenon. A simulation can be a valuable classroom supplement since it is less risky than a reality situation, presents lower training costs due to use of an alternate environment, tends to be convenient and readily available, has the ability to focus on specific aspects of phenomenon, and is repeatable. Simulations are designed to develop problem-solving skills and to allow students to form hypotheses as well as engage in discovery learning. It is for these reasons that simulations are considered a most effective courseware framework.¹⁰

Computer-assisted instruction can also be configured as a competitive game. Games usually involve some elements of competition or challenge against an opponent or task and are governed by a definite set of rules. These rules determine how the game is played, what actions are allowed, what actions are prohibited, how players may acquire points, and what constitutes winning the game. As with simulations, it is important that time and effort be spent both in preparing students for the experience and in debriefing afterwards.¹¹

Courseware Extends Learning

Courseware describes computer-based instructional software designed to supplement or replace educational materials by extending learning beyond the traditional classroom.¹² Personal computers have had a major impact on the field of instructional technology. Many education specialists attribute the increased production of courseware packets to the popularity of the microcomputer (PC). The fact that a microcomputer can be used to support a variety of courseware provides a broad range of opportunity for student usage without reliance upon a dedicated computer laboratory.¹³

During the past two decades, researchers have found that computer-assisted instruction can be at least as effective as line teachers or other media, and that often there is a savings in the time it has taken students to learn.¹⁴ In fact, students respond even more favorably to the individualization of computer-based instruction when compared to structured non-automated problem sets. In addition, well-designed courseware can actually provide the opportunity for increased student-instructor interaction. Computer technology can be applied as a positive educational force, capable of increasing the efficiency and effectiveness of the educational process.¹⁵

A major objective of courseware is classroom enrichment through enhanced student and instructor interaction. In essence, good courseware can lead to better teaching. Courseware may include computer-based exercises specifically designed to supplement a textbook, course, or industry application. In essence, courseware is software customized for the classroom environment based upon the concepts of interactivity, sensitivity, and individualized instruction. The use of instructional technology can motivate students to learn, while individualizing course assignments and problem sets.¹⁶

Effective courseware should bring together the expertise and experience of the creative teacher and the expertise of a skilled programmer in such a way that each has control over their area of expertise.¹⁷ Hence, a decision for determining which tasks are programming and which are the province of the designer is important. Well-constructed courseware should represent a dialogue between student and computer. Such dialogue is often meant to allow the student to achieve a specific measurable goal.¹⁸

Courseware may also contribute to a reduction in the time educators spend on clerical work, thereby enabling the reallocation of instructional time, student progress monitoring, and classroom administration.¹⁹ Courseware capable of tabulating, analyzing, comparing, and printing student responses, correcting solution feedback, and preparing course administrative reports can be valuable to enhancing student learning experiences. See Appendix A for explanation of terms.

In order to enhance the appeal and extend the capabilities of courseware, multimedia platforms are being adopted.²⁰ Research supports the contention that the more user friendly a courseware package, the more likely it is to be used.²¹ While pull-down menus, user interfaces, and the like contribute to effective courseware design, multimedia provides an even more appealing platform. Instructors should consider such multimedia sources of information as compact discs (CD-ROMs), online databases, videodiscs, and satellite downlinks. In addition, the availability of multimedia toolsets like computer-aided design and animation modules should also be considered.

Multimedia is likely to become an invaluable tool in hospitality education. Multimedia programs, sometimes referred to as ultimedia, make use of technologies designed to stimulate user senses²² with the goal of providing more comprehensive information within an educational session. For example, multimedia encyclopedias tend to include full color graphics, video, and audio data. Topical data can be linked to related themes, thereby enabling a student to navigate through a large volume of relevant information with a minimal amount of research or shuffling.²³ Users wanting to learn about the hotel industry, for example, may be able to go directly to that section and view photos of several lodging properties accompanied by text. In addition, the student may be able to initiate an audio clip of the development of resort hotels, or a video clip of guest registration.²⁴

Multimedia technology appears highly compatible with hospitality education and training programs and is likely to make a significant contribution to the field.

Distance Learning Provides Immediate Feedback

Distance learning, also referred to as field-based teaching, involves in-service classes delivered to off-campus locations, thereby enabling more persons to participate in the curriculum.²⁵ Distance education can provide immediate access to a wide array of information for a geographically-dispersed audience. It can provide students with immediate feedback relative to a critical learning experience. When on-campus faculty develop and deliver coursework to off-campus students, the resultant student/teacher relationship may be referred to as distance learning.²⁶ While some experts predict a total disappearance of the traditional classroom, applications of educational technology are more likely to expand the classroom, not eliminate it.²⁷ Through distance learning the traditional classroom is more likely to support an expanded and unique delivery system that emphasizes critical learning and problem-solving skills.

Important to an effective distance learning process is the classroom environment and the proficiency of instruction. When a course is transmitted to a remote site, the role of a faculty member changes from that of a classroom leader to that of a group facilitator. Faculty must take responsibility for coordinating class activities, overseeing practice exercises, and monitoring small-group projects.²⁸ The success of a distance learning course, often delivered over a television monitor, is contingent upon the structure of the situation. The instructor must feel comfortable with the material, text, and selection of visuals.²⁹ For students, it means assuming responsibility for organizing visuals with text. There needs to be a written set of instructions or objectives designed to help students master course content, while simultaneously allowing students to develop an array of skills. In the process of designing and implementing a distance learning course, instructors need to be aware of how critical their roles are in the course design, delivery, monitoring, and evaluation of distant learners.³⁰ An efficient means by which to meet these objectives is audiographics.

Interactive Devices Allow Sharing

An additional technique contributing to student/instructor interaction within the context of distance learning involves the use of portable docking devices. The concept of docking refers to the connection of portable (laptop, palmtop, or notebook) computers to a larger host computer, thereby enabling file transfer between the two systems. Instructors can transfer (download) assignments to student portables or can retrieve (upload) files from the portable units. Scanners can also be used to enter documents into either the portable units or the host computer. Once received, scanned student documents

can be electronically reviewed and graded. Instructors can base course requirements upon students using standard desktop publishing software or customized application courseware. In addition, instructors can use test banks, grammar and spelling checkers, scoring and record books, and related administrative software. Docking devices could be especially useful in a distance learning environment which requires students to occasionally meet at a central location or at a remote location accessible by network technology.³¹

Audiographic technology is computer-based, hybrid technology that permits simultaneous transmission of voices and graphic images across telephone lines. Audiographics is highly interactive and features two-way simultaneous communications (duplexing) of audio and video, thereby enabling immediate feedback. In essence, audiographics combines teleconferencing via speaker phones with computer-based graphic scanning.³² The system captures and scans graphic images, transmits and displays images from location to location, and sequences and stores multiple images in the form of slide presentations. For example, simultaneous to giving a verbal report, a student could also be transmitting a scanned written document to an instructor. Basically, audiographics allows persons at different locations to speak with one another, to share text and graphic images, and to annotate images displayed on monitors. Several locations can be networked together in a conference call format with each site having full interactivity.³³ The creation of an audiographic network (AGN) allows students to scan and transmit samples of their work to the instructor for review, feedback, further discussion, and/or evaluation.

In a traditional classroom, dialogical and dialectical thinking occurs through both instructor/student interaction and peer interaction. Through this shared process, feedback becomes immediate, thereby enabling students to become more active and better able to judge their level of understanding. In an audiographic environment, students and faculty rarely meet face to face; therefore, it is more difficult to facilitate feedback, which is an important part of the teaching process. Research suggests that distance learners display equal examination performance to students from a traditional classroom.³⁴

The next step in the evolution of educational technology appears to be virtual reality training, simultaneous experiences delivered in a computer-generated, three-dimensional, multi-sensory, real-time interactive environment.³⁵ Students can explore and document their discoveries. In addition, they can also enter a computer-generated environment known as "cyberspace." Hospitality students, for example, could travel through a virtual world hotel or food service cyberspace. The experience would enable them to view, review, and refine objects in the space and to observe the effects of changes. This may be as close to the real world as education can bring a student.

The role of educational technology in hospitality education is evolving. Educators need to be aware of innovative techniques for curriculum delivery and support. The advancement of multimedia

instructional courseware, distance learning, and audiographics, and the potential of virtual reality technology are items deserving educator consideration.

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Appendix A

Characteristics of Effective Software

1. Portability: Application should be independent of computer architecture, platform, or operating system. Applications should offer students a high level of flexibility with respect to selected computer system or network, in other words, a multi-platform application capable of being accessed by a diverse number of systems.

2. Modularity: Application should be divisible into component sub-parts for use with other modules. The application should not be procedurally rigid, relying upon a predetermined sequence of completion. Faculty and/or students should be able to determine the sequence of assignments within the application.

3. Adaptability: Application should be modifiable by faculty member for specific classroom utilization. It should be easy to incorporate custom toolsets or other programs, or program modules, within application parameters.

4. Interactivity: Students should be able to request assistance, information or explanation at any point in application. Networked applications should provide a means for student to faculty or student to student interaction. Bi-directional applications are generally superior.

5. Critical Thinking: Applications must be designed provide a basis, guidelines, and tools to foster critical thinking skills within students.

6. Networking: Interconnection of students, faculty, classrooms, and library resources enable an unlimited retrieval of text, audio, and video materials.

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