

CREATING POWERFUL ONLINE COURSES USING MULTIPLE INSTRUCTIONAL STRATEGIES

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In 1992 Shade reported that the Internet was expanding at an explosive rate, extending over fifty countries on all seven continents with approximately five to ten million users. By 1995, the number of Internet users was increasing by ten percent per month and was estimated at over thirty million (Negroponte in Forrest et al., 1996). Along with this explosive growth has been a rapid increase in distance education via the computer (Scigliano, Joslyn & Levin, 1988) with many organizations and institutions now developing systems and networks for learner access to the Internet.

The explosive growth of computers is not the only factor contributing to the increase in distance education via the Internet. Access to the Internet is now relatively inexpensive for many users and the software used to access information on the World Wide Web as well as to develop courses for delivery via the Internet can be obtained free or at a low cost. This easy, inexpensive access for learners and educators makes the Internet one of the educator's most important tools (McManus, 1997).

THE QUALITY OF ONLINE COURSES

According to Azarmsa, computers can bring the "world into the classroom and make a student's desk a delta for information flow" (1993, p. 13). Azarmsa points out that when "properly structured and facilitated" (p. 13), online educational activities can be powerful tools in our "instructional arsenal" (p. 13). In order to show just how powerful a tool computers can be, Azarmsa points to a three month pilot online course offered by The Center for Distance Learning at Empire State College in New York. The course was presented totally online and utilized discussion lists and e-mail. At the end of the study, the work submitted by the students in the pilot study "was found to be superior, both as to breadth of research and quality of analysis, to work submitted by a previous non-computer class" (p. 138). This research supports the premise that effective online education depends upon not only increased access to more resources and information, but also upon learning experiences which are appropriately structured and facilitated by educators.

In order to be a viable means of instruction, courses developed for online use must be comparable in quality to courses offered in a traditional university environment. Houle (1974) believes that the methods and strategies which are utilized in the classroom are very significant since they both convey content and are "considered the heart of the educational format" (p. 153). Numerous theories exist which apply to education facilitated in traditional higher education environments (Knowles, 1970; Rogers, 1969;

Witkin, 1976). Unfortunately, since utilizing the Internet for education is so new, few theoretical frameworks have been developed primarily for application to Internet education. When designing courses for presentation in this environment, the best we can do is to transfer already established theories and models from the more traditional educational contexts to this new environment and then carefully examine whether or not these strategies are meeting the objectives and goals of the learners and the faculty.

A very important component of quality in any learning environment is the learner's comfort level within that environment. In the case of education via the Internet, learners must feel comfortable with the computers themselves as well as with the online learning environment. According to Dolence and Norris (1995), learners have come to expect "world class service and user friendliness" in education processes (p. 46). Thus it is clear that educators need a way to teach computer skills so that there is a minimum of learner frustration and confusion. Ellsworth (1995) presents a computer skills learning model that she has developed and has found to be successful.

Ellsworth suggests that the successful integration of online work within a traditional curriculum depends upon the "utilization of tiers of developmental teaching and learning" (1995, p. 34). In other words, "Each plane of such learning requires mastery of the previous level" (p. 34). The first level deals with such issues as the objectives of the course, expectations and how online work fits into the overall course. Ellsworth states that students must "see the connection between what is being taught (the content) and the vehicles (methods and media) for that teaching" (p. 34).

The second level of learning builds upon the first and involves learning how to use the technologies. Ellsworth states, "These are the skills or "how to" operational-level tasks: the rules of interaction" (p. 34). The third level builds upon the first two and entails gaining "proficiency and mastery of the tools to the extent that they become second nature" (p. 34). This third level results in "problem solving, information gathering, negotiating, and turning in assignments" (p. 34). Ellsworth makes a strong case for both the students and the instructor becoming proficient enough with the technological tools so that they do not create a communications barrier.

LEARNING STYLES

Many educators agree that learning and the learner are the central concerns of education (Houle, 1974; Cross, 1976). However, as Manning points out, "it is comparatively easy for us to repress or avoid the existence of individual differences whenever it is convenient or economical or comfortable for us to do so" (1976, p. 295). While Cross (1976) reminds us "it takes no special knowledge of research to recognize that we all have characteristic "styles" for collecting and organizing information into useful knowledge" (p. 112), Ellsworth (1995) points out that some learning styles and personality needs can be particularly well addressed in an online learning environment.

Ellsworth has found, for example, that "some fairly introverted students found it easier to communicate via computer-mediated communication than in face-to-face situations (p.

35). She further notes that "CMC provides a less hierarchical approach, which better meets the leaning needs of some learners than do the didactic teaching/learning methods of many conventional settings (p. 35).

Because two learners may participate in the same class, but have different learning experiences (Tyler, 1949), online educators must organize situations that address the various facets of learning in order to provide significant experiences for each class participant. In designing online learning courses, this can best be accomplished by utilizing multiple instructional strategies.

ONLINE COURSES AND MULTIPLE INSTRUCTIONAL STRATEGIES

For the past century or more, teachers have controlled classrooms by virtue of their monopoly on information. Now, with instant access to vast resources of data and information, students are no longer as dependent on faculty for knowledge. As faculty are incorporating information and learning technologies into the fabric of teaching, learning can become more collaborative, more contextual and more active (Batson & Bass, 1996) According to Knupfer (1993) effective use of the computer as a resource in education "necessitates changes in pedagogy" (p. 171), with the teacher taking the role of "facilitator of information," (p. 173) while guiding the student toward solutions. In order for teachers/faculty to be successful in facilitating technology-mediated learning, they must "be willing to release the control of learning to the students and feel secure in a different role" (p. 173). Knupfer makes the further point that "Many programs currently used in educational computing do not fully utilize instructional strategies to best facilitate learning" (p. 171). Educators must first formulate their curriculum, goals and objectives and then consider how "computers can best serve the instructional objectives and activities of that curriculum (p. 171). Therefore, in order for technology-mediated learning to be successful, faculty as well as learners must take on new roles in the teaching-learning relationship.

Berge and Collins (1995) have found that computer-mediated communication (CMC) generates improved tools which permit a fuller range of interactive methodologies. In addition, CMC encourages instructors to pay more attention to the "instructional design of courses" (p. 2). These factors can improve "quality, quantity, and patterns of communication in the skills students practice during learning--a change that requires, in many cases, both teachers and students to learn different roles" (p. 2). An important point to remember is that these new roles are not acquired from thin air. As educators, we must assist learners in acquiring the skills needed for these interactive methodologies. As administrators, we must provide opportunities for educators to acquire these skills as well as how to assist learners in working successfully in the computer environment.

Of the many instructional strategies available for use in the online learning environment, most have not been developed specifically for online instruction, but are currently employed in traditional classrooms, and can be successfully adapted for facilitating online learning. According to Knowles, educators must be able to choose a learning technique that is "most effective for accomplishing a particular educational objective"

(1991, p. 3). From this perspective, instructional strategies are tools available to educators for designing and facilitate learning . Pitt (1996) has identified ten instructional strategies which have been effectively used in the traditional classroom and can likewise be used in the online learning environment. These strategies are: learning contracts, lecture, discussion, self-directed learning, mentorship, small group work, the project method, collaborative learning, case study, and forum.

LEARNING CONTRACTS

Learning contracts, according to Bonnell and Caffarella (1991), seek "to adapt educational needs to individual student needs, and are a viable option when there is diversity in learner needs and interests" (p. 133). They define the learning contract as "a formal agreement written by a learner which details what will be learned, how the learning will be accomplished, the period of time involved, and the specific evaluation criteria to be used in judging the completion of the learning" (p. 134). Learning contracts help the educator and learner share the responsibility for learning.

Knowles (1991) supports the use of contract learning as an instructional strategy to bring about many practical benefits, including deeper involvement of the learner in the learning activities which they themselves have been involved in planning. He states that once a learner passes through the stage of confusion and anxiety associated with developing a contract, he/she will "get excited about carrying out their own plans" (p. 46). Knowles sites another benefit of utilizing contract learning--an increase of accountability, since the learning contract provides "more functional and validated evidence of the learning outcomes" (p. 46). The contract also provides a means for the learner to receive continuous feedback regarding progress toward accomplishing learning objectives.

Learning contracts, a powerful tool in conventional classrooms, can be equally effective in the online environment. Because the online environment does not provide the luxury of physically meeting with the class to discuss learning goals, objectives, and expectations, we must be very clear and concise in what we expect from the learner. Likewise, the learner must also be clear about what he/she expects from us and the course. A learning contract can facilitate negotiation and clarity of learning goals and outcomes. Sample learning contracts with instructions can be placed on a web page for the student to use as examples, and students can be encouraged to brainstorm ideas for learning contracts with the instructor and their online peers as well as negotiate the final contract utilizing email or an online discussion group.

LECTURE FORMAT

According to Farrah (1990) the lecture format is one of the most frequently used instructional methods in adult education. Broadwell admits that the lecture format assumes the educator to be the expert; but describes the lecture as "an efficient way of imparting information in a scheduled way without interruption, and with less planning than in most other teaching methods" (1980, p. 3). Cox suggests that, ideally, "Lectures are only there to lay foundations, show the way, ease the passage, as the student works

through the subject" (1994, p. 59). Knowles proposes that a good lecturer is one who gets to know his/her students and develops the lecture according to the student's needs (1950). The lecture appears to be most effective in accomplishing its specific purposes when used in combination with other instructional strategies.

Online lectures can be presented in a variety of ways. Lecture notes can be placed on a web page for the learner to review. Notes can be put together in a packet for the learner to refer to and either downloaded in file form using File Transfer Protocol (FTP) or sent via regular postal mail. Lectures can also be presented via audio or video over the Internet. Since online lectures must, of necessity, be carefully prepared in advance, they are likely to be shorter and more to the point than many lectures in live classroom which, all too often, can extend far beyond the attention span of even adult learners. A short lecture which can be read or listened to in ten to twenty minutes will be likely to give the learner enough information to serve as a basis for further reading, research, or other learning activities. Another obvious advantage of online lectures is that they are readily available for students to reread or listen to again and again as needed.

DISCUSSION FORMAT

According to Brookfield, "Of all the methods most favored by adult educators, it is discussion which has perhaps become enshrined as the adult educational method "par excellence" (1990, p. 187). He goes on to say, "discussion is revered as the educational method which is the most participatory and the most respectful of learners" (p. 187) since it encourages active, participatory learning. The discussion format encourages learners to analyze "alternative ways of thinking and acting" (p. 192) and, most importantly, assists learners in exploring their own experiences so that they can become better critical thinkers. Brookfield further argues that discussions should be as diverse as the learners involved.

The Internet offers several modes for discussion including (1) mailing lists (listservs) that focus on particular topics and can be set up for only the participants of the course, and (2) bulletin board discussion lists. Both of these options utilize asynchronous communication. Synchronous (real time) communication can be offered by utilizing chat rooms or text-based virtual reality environments, better known as Multi-user Domains (MUDs) or Multi-user Object Oriented Environments (MOOs).

SELF-DIRECTED LEARNING

Self-directed learning can include self-paced learning, independent learning, individualized learning and self-instruction. Self-directed learning is defined by Conner, Wright, DeVries, Curry, Zeider and Wilmsmeyer as "Learning initiated and directed by the learner" (1995, p. 62). Knowles describes self-directed learning as usually taking place "in association with various kinds of helpers, such as teachers, tutors, mentors, resource people, and peers" (1975, p. 18). Whatever terminology is used, self-directed learning places the responsibility for learning directly on the learner.

Knowles believes there is convincing evidence that "people who take the initiative in learning (proactive learners) learn more things, and learn better, than do people who sit at the feet of teachers passively waiting to be taught (reactive learners)" (1975, p. 14). He goes on to say, "They enter into learning more purposefully and with greater motivation. They also tend to retain and make use of what they learn better and longer than do the reactive learners" (p. 14). According to Kemp, Morrison and Ross (1994), "a "true" individualized learning or learner-controlled program would require the design of separate objectives and learning activities for each learner according to that individual's own characteristics, preparation, needs, and interests" (p. 142). Kemp, et al suggest that in many learning situations "learners participating in self-paced learning programs work harder, learn more, and retain more of what is learned" (p. 143). These and other advocates seem to agree that the independent learner is one who is more involved and active within the learning process.

Computer-mediated learning via the Internet, by its very nature, supports the self-directed learner in pursuing individualized, self-paced learning activities. The learner, working at a computer at a convenient time and pace, is able to search and utilize the vast archive and database resources of the Internet and numerous online library catalogs and document delivery systems to research nearly any topic imaginable. He/she can visit libraries, museums and various institutes world wide, talk to professionals, access the latest research, and read electronic newspapers and peer reviewed scholarly electronic journals. He/she can write collaboratively with peers and even publish written and multimedia products on web pages. The self-directed learning possibilities of computer mediated online communication would seem limited only by the learner him/herself.

MENTORSHIP

The role of a mentor is to empower students by "helping to draw out and give form to what their students already know" (Parks Daloz, 1990, p. 206). The aim of mentorship is to promote the "development of the learner" (p. 206). Thus a mentor serves as a guide rather than a provider of knowledge. According to Parks Daloz, a mentor serves the function of "introducing students to the new world, interpreting it for them, and helping them to learn what they need to know to flourish in it" (p. 207). Mentors in education teach by interpreting the environment and modeling expected behaviors. They also support, challenge, and provide vision for their students.

A major benefit to online mentorship is the opportunity for frequent, convenient communication between mentor and student. Weekly or even daily journals and communications can be sent between mentor and student via e-mail, providing an ongoing "dialogue" which supports the development of the mentor relationship and offers numerous opportunities for timely feedback on student questions, concerns and issues . For busy educators and students, electronic communication can be a welcome, effective alternative to telephone tag and parking problems.

SMALL GROUP WORK

Small group work provides learners with the opportunity to discuss content, share ideas and problem solve with others (Kemp, et al. 1994). Learners also acquire experience by presenting their own ideas as well as considering ideas put forth by others. A variety of possible group formats can encourage and provide opportunities for interaction within small groups.

One such format is the discussion group which allows learners to "think about a subject under discussion and present their views" (Kemp et al., 1994, p. 150). According to Kemp, discussion within the small group is usually on higher intellectual levels "(specifically analysis, synthesis, and evaluation) than is possible solely with the recall of the information" (p. 150). The educator may play various roles within the discussion group format.

Another format described by Kemp et al. (1994), is guided design. It can provide and encourage interaction in small groups. This type of group focuses on "developing the learners' decision-making skills as well as on teaching specific concepts and principles" (p. 150). Participants work to solve open-ended problems which require outside class work to gather information. This format encourages learners to "think logically, communicate ideas, and apply steps in a decision-making process" (p. 150). Learners are also required to apply the information they have learned, exchange ideas, and reflect on suggested solutions. The instructor's role is to act as a consultant to the groups.

Role playing is another format available for use with small groups (Kemp, et al., 1994) involving dramatization by group participants of a "situation relating to a problem" (p. 151). Each participant "acts out a role as he or she feels it would be played in real life" (p. 151). This promotes "an understanding of other persons' positions and their attitudes as well as the procedures that might be used for diagnosing and solving problems" (p. 151). McComb (1994) suggests using role playing to simulate real-life group work situations. Thus role playing can help learners gain a fuller and richer understanding of a problem or situation.

Kemp et al. (1994) also describe a games format which requires two or more groups to compete in "attempting to meet a set of objectives" (p.151). The game is organized under a set of rules and procedures and information is provided that requires decision making and usually follow-up actions. According to these authors, "most instructional games are typical real-life situations" (p. 151). Those utilizing the games format can avoid confusion within the groups by making the rules, procedures, and objectives of the game clear and concise.

Computer-mediated communication (CMC) offers several distinct benefits for small group work. First, it allows small groups of students to work independently while still having access to the instructor (McComb, 1994). In some cases, where it is difficult for all members of an online class to meet synchronously for group work, four to five students can be organized according to their time zones, making it possible to find a

convenient time to participate in a synchronous communication learning environment. Larger groups can benefit by communicating asynchronously via e-mail or via a listserv.

A second benefit of CMC for group work is that it "equalizes control among participants, (providing) identical access to and control of the CMC environment" (McComb, 1994, p. 165). Factors such as geography, gender, or handicapping conditions do not tend to disadvantage learners in this environment. Thirdly, CMC allow the instructor to respond directly to the questions and needs of particular groups without taking the time of other groups not affected by a problem or situation (McComb). According to Ahern and Repman (1994), CMC permits a level of interaction that is not usually possible in the more traditional classroom.

PROJECT METHOD

According to Knowles (1950), projects are tasks that "grow out of the training being carried on in a course" (p. 45). Projects can be done on an individual basis or within a group. Knowles feels the project method "stimulates interest and gives students an opportunity to pursue their special interests. It also enables the students to obtain practical experience and to gain a sense of accomplishment" (p. 45). Using projects in a learning activity is a good way of making the learning more relevant to the learners.

Good & Brophy (1994) describe two essential components of a project. Projects require "a question or problem that organizes and drives activities, and the activities result in a series of products that culminate in a final product that addresses the driving question" (p. 233). They go on to say that final products should be shared with others and critiqued. The feedback participants receive enables them to "reflect on and extend their emergent knowledge and to revise their products if necessary" (p. 233). Many times an individual project is only critiqued by the facilitator, but by sharing individual projects with other participants, the learner is afforded the opportunity to obtain more diverse viewpoints and feedback.

Many of the instructional strategies discussed here fall within the realm of group projects. Group projects can include simulations, role playing, case studies, problem solving exercises, group collaborative work, debates, small group discussion, and brainstorming (Brookfield, 1990; Gilley, 1990; Marsick, 1990; Paulsen, 1995; Rogers, 1969). As with individual projects, participants in group projects should receive feedback in order to expose them to more diverse viewpoints.

Independent and group projects enable online learners to pursue special interests, to write or create for an audience, and to publish or present their findings and conclusions via the Internet. If evaluation and critique standards are presented to all groups or class participants, the learner or group presenting can benefit from the diverse viewpoints and feedback of their peers and professors. The Internet provides the additional potential of obtaining an even broader range of feedback from experts or interested peers who access the final product via a class web page. Kimeldorf (1995) feels utilizing the projects method in online learning can integrate learning into a larger community.

CASE STUDY

According to Marsick (1990), good adult education should be experiential. It should "draw upon the past experience of participants...should be participatory in nature" (p. 225) and "should have an action component, which is a link to future experience" (p. 225). The case study is a method that meets these criteria. Marsick claims the key to a successful case method is the selection of the "right problem situation" (p. 227). The problem situation must be relevant "both to the interests and experience level of learners and to the concepts being taught" (p. 227). The case report should include facts regarding the problem, the environmental context, and the characters of the people involved in the case. Marsick advises that the case report should be factual, but also contain the opinions and views of the people involved. Learners should have access to the problem solution, but not until they have reached their own conclusions and can then compare their results with the actual decision taken to resolve the problem.

The case analysis, according to Marsick, can be carried out with the learners working independently or in groups (1990). She advises that if groups are used, then the group should be provided the opportunity to "brainstorm their perceptions of the case" (p. 228) before discussion. She encourages the use of the Socratic method, "a probing, critical discussion that raises new perspectives and digs for underlying assumptions that may not be apparent" (p. 228). One advantage of using the case method is that it "emphasizes practical thinking" (p. 239). Just as in a real situation, learners are required to make decisions "under time pressure with an inadequate stock of information" (p. 239). Marsick further believes that the case method assists learners in identifying principles after examining the facts of the case and then applying those principles to new situations; thus they "learn to formulate problems as well as solve them" (p. 239). Case analysis is equally effective when used in combination with other instructional strategies.

In the online environment case studies can be presented on web pages and discussed through email or conferencing groups. Many case studies are available for access on the Internet or cases can be developed by class groups as collaborative projects. In addition, the vast resources of the Internet can be tapped by students and educators to contribute data, information and expert advice to case development and analysis.

FORUM

Sisco defines the forum as an "open discussion carried on by one or more resource persons and an entire group" (1990, p. 285). Responsibilities of the moderator include "guiding discussion during which the audience is encouraged to raise and discuss issues, make comments, offer information, or ask questions of the resource person(s) and each other" (p. 285). According to Sisco, there are two variations of the forum: the panel and the symposium.

The panel is defined by Sisco as "a small group of three to six persons, who sit around a table in the presence of an audience and have a purposeful conversation on a topic in which they have specialized knowledge" (p. 285). Guided by a moderator, the panel is

informal in nature, but allows for no audience participation. Sisco defines the symposium as "a series of presentations given by two to five persons of notable authority and competence on different aspects of the same theme or closely related themes" (p. 285). Although the symposium is formal in nature, questions from the audience are encouraged once the presentations have been given. An obvious benefit of the symposium is that it gives learners exposure to a variety of experts' viewpoints and offers an "opportunity for audience members to clarify points made by the speakers" (p. 289).

Because computer mediated communication and networking facilitate the asking and answering of questions, CMC provides an ideal environment for the types of information exchange typical in forums. In fact, the forum can be more convenient and effective in the online environment than in the traditional classroom because speakers, experts and moderator can participate without having to travel or even be available at a particular time. Both synchronous and asynchronous communication can be utilized to support online learning forums.

PUTTING IT ALL TOGETHER

The online learning environment allows educators and students to exchange ideas and information, work together on projects, around the clock, from anywhere in the world, using multiple communication modes (Hiltz, 1994). Given the advantages and resources of this rich learning environment, how can multiple instructional strategies best be utilized for online learning? Just as in the traditional classroom, instructional strategies are most effective when employed specifically to meet particular learning goals and objectives. Effective course design can begin with asking and answering the key question: what are the major learning goals and objectives for this course? Once these goals and objectives have been identified and clearly articulated, the question of which learning strategies, activities, and experiences to employ can be addressed.

Online learning can employ any of the wide variety of strategies discussed here, from email to online data base and archive searching. Much of the power of learning via the Internet lies in its capacity to support multiple modes of communication including "any combination of student-to-student, student-to-faculty, faculty-to-student, faculty-to-faculty, student-to others, others-to students and so forth" (Ellsworth in Berge & Collins, 1995, p. 31). Taking into account the varied learning styles of learners and providing opportunities for self-directed and collaborative learning, educators can facilitate powerful, effective courses geared to achieve specific learning goals and outcomes using the vast resources and capacities of computer-mediated online learning.

The online learning environment is, after all, just another learning environment, in some ways similar to and in some ways different from more traditional environments such as conventional classrooms, seminar rooms, or labs. When we move our class outdoors, if it is convenient and beneficial to do so, we adjust our methods, materials and strategies to fit the natural environment. Likewise, when we move our class onto the Internet, we plan for and make the best use of the online environment. The various instructional strategies we use to meet the goals and objectives of our courses are likely to be similar in each

environment. However, the ways in which we utilize the strategies will differ as we make the best use of the characteristics and capacities of each environment.

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