



# Interaction in Distance Education: The Critical Conversation

By Angie Parker

*In 1897, with a series of shorthand lessons delivered by postal service, Anna Tickner changed the way instruction was presented forever. The early days of distance education witnessed the inclusion of the old passive/lecture paradigm, which was even more deadly from a distance than in person. Today's students who consistently "surf the world" with the Internet will not tolerate this non-interactive style of instruction and will quickly search for a more "Hollywood style" course that provides active conversation with the instructors, experts, and other students.*

*Interactivity has been defined in numerous ways ranging from "pressing the remote" to activate the VCR to "two-way conversation" provided by satellite up links. Regardless of how interaction is defined, history has shown it to be an essential component in the learning process. Research has supported this inclusion but stops short of application due to the mediation between instructor and student provided by a wide range of technologies.*

*Distance education is made up of a network of learners and teachers who travel electronic highways and meet in virtual classrooms. The new media for delivery brings with it a challenge and an opportunity. The challenge lies in the refocusing of the instruction to embody a component of lively interaction. The opportunity lies in the access to education for a worldwide coalition of students.*

**I**n 1879, with a series of shorthand lessons delivered by postal service, Anna Tickner changed forever the way instruction was delivered. For the first time, students and instructor were separated by both time and distance. Although the delivery system was "cutting edge" the teaching model remained that of self-directed, individual learning. Ms. Tickner's lessons and those of numerous subsequent correspondence schools offered instruction that was totally void of interactivity.

In the mid-1960's, as radio and television became more pervasive in American homes, distance education moved its delivery away from the postal service and began to utilize electronic media as the purveyors of instruction. The delivery methodology had changed but the instructional focus still remained "self-constructing" with little or no interaction among the participants. Although the correspondence and individualized learning models flourished for over 100 years, many current educational advocates criticize these models for the lack of interactivity (Roblyer, 1996; Pea, 1994; Moore, 1992).

Today's "Information Highway" bound students demand instruction which includes not only a high level of interaction among students and between student and instructor but also immediate access to the information from anywhere on the globe. This demand for interactivity in the learning process has required not only a new focus on instructional design but new two-way technologies to

mediate the delivery process. The technology must empower students to construct and reconstruct knowledge as a result of these interactions. Additionally, the interaction, provided by current technologies, must encourage students to be self-reflective and self-corrective. It is no longer enough for the instruction to flow from the instructor to the student in a sequential, non-interactive path. Today's distance education courses must authorize students to question their ideas and beliefs, thereby, encouraging provocative and interactive construction of personal knowledge. Audioconferencing, videoconferencing and computer-conferencing provide instructors with the ability to vary both the method and the media thus leading to significant changes in the way distance education is accomplished.

The presence of interactivity, provided by both course design and media are paramount if distance education is to be perceived as quality instruction. The following article will focus on four aspects of the interaction process in distance education:

- (a) a justification for interaction in the pedagogical process
- (b) a definition of interaction as it applies to the process of learning
- (c) the relationship between the current technologies and interaction
- (d) methodologies for integrating interaction into distance education

## A JUSTIFICATION FOR INTERACTION IN THE PEDAGOGICAL PROCESS

A brief review of the past 25 years of education identifies interaction as an essential ingredient in the academic process. The most successful math and science reforms of the 1960's were not just those that emphasized the active nature of the learner through manipulatives and hands-on inquiry, but instead those that provided opportunities for students to talk and to question while they were engaged in the process of learning.

The interaction between instructor and student and among students must direct the creation of a personal information structure which leads the individual to recognize gaps in understanding and to forge new connections between formally disconnected knowledge. The result of interactive learning can be new knowledge, reorganized knowledge, or simply the awareness of a need for additional understanding. The act of communicating, reconstructing and reconciling the information leads to internalized, long-term understanding (Kiesler & McGuire, 1987).

In addition to strengthening the process of knowledge acquisition, interaction also supports the social needs of the participants. Students in traditional classrooms form social ties that provide both academic support and the development of social skills. In a newly released survey Gross, Muscarella, and Piki (1994) concluded that interactive technologies such as computer-conferencing are neutral with regard to gender roles. "Good networked" technologies must go one step further and also be neutral with regard to role definition. This means the role of teacher and student should be transparent, thereby encouraging students to actively seek information from peers as well as the educator. By avoiding role definition, interactivity is greatly enhanced leading to personal construction of knowledge from a expansive variety of sources.

An interesting new slant on the importance of interaction in the learning process comes from Fulford's (1993) theory of cognitive speed. The average rate of speech (125-250 words per minute) is comfortable for both parties when involved in a two-way conversation. The average rate of speech not only allows the speaker to internally monitor what they say but allows the listener to mentally prepare responses. This preparation of mental responses and the occurrence of two-way interaction increases the comprehension of new material and the assimilation of that material with prior knowledge. The mental debate and oral sharing has also been shown to enhance recall of the material (Fulford, 1993).

The work of Schaffer and Hannafin (1993) supports the theory of cognitive speed and indicates a strong urgency for interaction in the learning process. This research team found that increased interaction resulted in higher levels of motivation, higher academic recall, and a more positive attitude toward the course. The bi-weekly interaction provided the academic and social network that is so often seen in traditional settings. The network, although mediated by technology, provided a methodology for academic problem solving and further realignment of personal knowledge.

Summers (1991) justified the importance of interaction in the distance education arena by stating that without interaction, teaching becomes simply "passing on content as if it were dogmatic truth" leaving the cycle of knowledge acquisition from critical-evaluation to knowledge-evaluation as nonexistent. Collaboration between teacher and student, both sharing in the role of knowledge acquisition, empowers the student to become an autonomous developer of personal knowledge.

Numerous studies Schaffer and Hannafin (1993); Romiszowski (1988) provide evidence that interaction may be the missing link in a successful distance education format. If this is the case, then how is interaction defined in the distance setting?

## DEFINING INTERACTION AS IT APPLIES TO THE PROCESS OF LEARNING

Interaction has been defined in a variety of ways, all based on the level of involvement by participants in the instructional experience and all dependent on situational factors. For example, interaction can be defined as active learning and can be as simple as pushing the "play" button on the VCR. Barnard (1995) believes that "active learning" for the purposes of distance education, must involve a purposeful, cognitive approach by the student. Although the definition used by Daniel and Marquis (1983) is dated, it supports Barnard's belief concerning interaction in the learning process. Daniel and Marquis see interaction as taking place when "the student is in two-way contact with another person(s) in such a way as to elicit from them reactions and responses which are specific to their own requests and contributions" (p. 32). Moore's (1992) definition of interaction goes one step further by offering an examination of three types of interaction: learner-content, learner-instructor, and learner-learner.

The first type, learner-content, is illustrated by a student reading a book or a printed study guide. The textual material must be structured in such a way as to necessitate cognitive interaction with the contents. The outcome of learner-content may be an analysis or even a personal summary of the material, which requires the learner to engage in reflective, mental conversation about the material.

Moore (1992) operationalizes the second type, instructor-learner interaction, as the core of all education whether traditional or distance. Instructors create a program of content to be taught and within that content, the instructor not only offers new information but also attempts to motivate the student to increase self-direction and to assess the learning that has taken place. The resulting personal cognitive reflection, or two-way conversation between instructor and student, are examples of instructor-learner interaction.

During the third type, learner-learner interaction, students work together to discuss, problem-solve and debate the material presented in the course. In learner-learner interaction the student is actively involved in a group assignment leading to cognitive alertness and active development of new knowledge.

Although Moore (1992) held interaction to be a multidimensional phenomenon that provides the foundation for constructing meaningful distance education programs, Wagner (1994) defined interaction as the "reciprocal events that require at least two objects and two actions." The interactions occur when these two objects and events mutually influence one another. Markwood and Johnstone (1994) related interaction to "quality" by stating that interaction was the "silent, critical, creative conversation within the learner's mind that is spurred and supported by the learning environment." Markwood and Johnson (1994) see critical conversation as triggered by four different types of interactions, each made possible by somewhat different technologies:

1. Interaction with media-individual students scrutinizing textbooks, videotapes or other course materials.
2. Interaction with resources-individual students or groups collaborating with the same or similar tools as those used by the professionals, for example word processors, electronic libraries, laboratories or studios.
3. Interaction with experts-students conversing with the instructor, other students or content experts in real time.
4. Interaction through electronic exchange-students electronically or digitally sharing the results of newly formed knowledge over periods of days or hours (p. 94).

Regardless of how interaction has been defined, it has long been considered the key to pedantic success in both traditional and virtual classrooms. In the distance education setting, however, all too often course designers and instructors place far too much emphasis on the technology and not enough on restructuring the course to meet the needs of interactive learners. In addition to providing high speed text and graphic support, the new media must do more than make the instruction more glamorous, result in faster transmission rates or require the student or instructor to become a "techno-whiz." Rather, the technologies must enable the learner to control their own learning by making them more self-reflective and self-constructive.

## THE RELATIONSHIP BETWEEN THE CURRENT TECHNOLOGIES AND INTERACTION

As technology has evolved, it has changed the way we search for and retrieve information and the way we disperse information to others. For example, the FAX machine and the Internet have recently gone from possible to pervasive simply because the need for rapid, global interaction has become essential. The same technologies that link people to information also provide a conduit for delivering instruction at a distance.

The type of technology and the role of that technology in distance education has been debated for years (Hackman & Walker, 1990; Clark, 1983; Carlson, 1991; and Ross, Sullivan, & Tennyson, 1992). Romiszowski (1988) fueled the debate by pointing to technology itself as one of the major deficiencies in distance education. Romiszowski's research cited several pitfalls; the impersonality, the inflexibility, and limitations of centralized systems to provide interaction

and, therefore, meaningful instruction to learners at a distance. On the other hand, Romiszowski debated that if utilized appropriately, technology could provide interactivity, could involve groups as well as individuals, could be totally private or one-to-one, and finally could be learner controlled. These positive characteristics of mediated instruction, however, can only emerge with a well-designed, technology-rich, interactive, pedagogical experience.

Clark's (1983) article, which has been widely cited, made a case for debunking the notion that technologies have anything whatsoever to do with the quality of instruction or the quality of learning which occurs. One of the most obvious and important facts of distance education, however, is that it is dependent on technology to exist as a means to educate. Since education takes place at a distance, some medium of communication must be employed to bridge that distance. However, the media employed in distance education is extremely varied and do not necessarily provide for interactivity. Learning can take place via any medium and the choice is determined by its ability to provide interactive communication, appropriateness to the material, the cost of delivery, the availability of facilities, and the number of students who will take the course. The most important, yet the most overlooked, is the availability to provide interactive communication. This ingredient is essential not only for education but for the world as we are moving toward the ability to communicate with anyone, anywhere, by any form-voice, data, text, or image-at a speed of light" (Naisbitt & Aburdene, 1990).

The technologies of interaction, which lie at the core of distance education, are advancing at a rate unimagined in even the recent past. Although distant delivery of education is but one small part of the technological revolution, it is a central focus of that revolution and offers an enormous potential for reshaping human interaction. Of particular benefit to distance education are the new multimedia technologies which allows for feedback, dialogue, and on-going assessment that are essential in all areas of knowledge acquisition. Emerging technologies offer the potential to extend the reach of education beyond all constraints of time and place and to carry it into the work place, the home and the learning center. In short, the efficiency of education can advance significantly through the use and application of technologies that provide a strong component of interaction.

When considering media for distance education purposes, the strengths and limitations of each must be analyzed. For example, it is imperative to determine the capability for interactive exchange and whether synchronous or asynchronous media best fit the needs of the distant learners. Synchronous communication occurs when all participants in the interaction are present, although not necessarily at the same physical location. Asynchronous communication is in some way technologically mediated and is not dependent on students or instructor being present at a specific time to conduct learning/teaching activities. Besides the potential convenience for students being able to work at convenient times and locations, asynchronous communication allows students to control the pacing of the instruction and, in some cases, increase the extent of knowledge acqui-

sition. There is a growing belief, however, that the kind and extent of interaction provided by the technology is a determinant of perceived enjoyment of the course and a belief that more learning has actually occurred (Roblyer, 1996). Integration of interactivity into the course content profoundly increases the potential for both the enjoyment of learning and the enhancement of cognitive skills.

## HOW TO INTEGRATE INTERACTIVITY INTO DISTANCE COURSES

Although interactivity is possible and a much needed component in distance education, it is often less likely and must be carefully orchestrated by the instructor. One of the reasons is the lack of understanding and professional development offered to faculty who are new to distance education. The sentiment of many faculty is to teach the same course offered on campus with the addition of a few more handouts. To those experienced in the art of distance delivery, it is evident that the addition of a few more handouts is not the solution for interactive course design. The word "quality" in the same sentence as "distance education" necessitates students working on real-world problems, students working in teams to find solutions, and consistent dialogue among class members and with the instructor. Additionally, the questions posed should involve higher order thinking skills such as evaluation, analysis, and synthesis rather than rote memorization. Once the questions is presented, either by the instructor or the students, hypothesis should be discussed and finally teams of students should be assigned to electronically explore possible solutions. The teams can work in chat rooms through email or even using telephone communication. In the early weeks of a distance class, white forced interaction is usually required. This can take place by linking a portion of the final grade to the length and occurrence of electronic interaction. (In traditional settings, this portion of the grade is usually referred to as attendance.)

As students move to a more self-directed mode, the course design must also change to accommodate more student control. The chats that were instructor directed in the early weeks of the class, should transcend to no more than 20% of the input originating from the instructor by mid-semester. The instructor takes on the role of "provocateur" rather than that of "academician." A well designed distance course that has a focus on interactivity includes many topics for discussion, feedback from students as well as experts, and finally links to sources of pertinent information. Literature citations, journal articles and URL's are only a few of the possibilities.

Distance education which emphasizes a strong sense of interaction should also include a certain degree of humor. Although new distance educators are primarily focused on the technology and the new course design, it is important to move beyond the content and to integrate a component of humor to make the course more humanistic. Offering students "real life" stories or sharing related cartoons or comics can make the class more enjoyable. Humor can lighten the burden of the learning curve for both student and faculty and can generate a feeling of sincerity among those in the class.

## SUMMARY

This "Critical Conversation" has consistently stressed the importance of interaction, however, even before interaction can begin, the course design must address the technology to be used to deliver the material and the methodology for assuring an appropriate degree of interaction. The early days of distance education witnessed the inclusion of the worst aspects of the old passive/lecture paradigm, which were even more deadly from a distance than in person. Today's students who consistently "surf the world" with the Internet will not tolerate this noninteractive style of instruction and will quickly search for a more "Hollywood style" course that provides active communication with instructor, experts and fellow students.

History has shown that interaction is an essential component in the learning process. Research from the 1960's indicated a need for a movement away from math and science manipulative to elevated discourse among students. Integrating interactivity into a traditional classroom is relatively easy, however moving that interactivity into several time zones is much more difficult but much more essential to success.

Distance education is made up of a network of learners and teachers who travel electronic highways and meet in virtual classrooms. This new media for delivery of instruction brings with it a challenge and an opportunity. The challenge lies in the refocusing of the instruction to embody a component of interaction. The opportunity lies in the access to education for a worldwide coalition of students. ■

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