

EDITORIAL
Three Types of Interaction
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Many of the greatest problems of communicating about concepts, and, therefore, practice in distance education arise from our use of crude hypothetical constructs-terms like distance, independence, and interaction, which are used in very imprecise and general ways, each having acquired a multiplicity of meanings. Most seriously, the same terms are commonly used at both generic and more specific levels. For example, the generic concept "independence" is frequently confused with its species, independence of learners from instructors in space and time and independence of learners to control their means of study. These are further confused with the many subspecies of each type of independence. The same could be said of the concept and term "distance" itself, which is commonly used in the most general sense to describe education characterized by separation between learner and instructor, but by too few users in the more technical and specific meanings as discussed, for example, by Saba (1988), Keegan (1988), Shale (1988), or Moore (1984). Interaction is another important term that carries so many meanings as to be almost useless unless specific submeanings can be defined and generally agreed upon.

Progress in this direction was made in a panel discussion convened by the Divisions of Independent Study and Educational Telecommunications of the National University Continuing Education Association at its annual meeting in Salt Lake City on 16 April 1989. Chaired by Shirley Davis of Purdue University, the panel was titled: "Interaction: That perplexing component of distance education." The panel-Arnold Seigal, Ellen Wagner, Nofflet Williams, and myself-debated such questions as: What level of interaction is essential for effective learning? What is good interaction? How can we achieve it? What does real time interaction contribute? Is it worth the cost?

For my contribution I suggested that, as a minimum, distance educators need to agree on the distinctions between three types of interaction, which I labelled learner-content interaction, learner-instructor interaction, and learner-learner interaction. To distinguish among these three types will have benefits conceptually, but will also do much to overcome the misunderstandings between educators who use different media. (For example, see the debate between Pittman [1987] and Duning [1987]).

Learner-Content Interaction

The first type of interaction is interaction between the learner and the content or subject of study. This is a defining characteristic of education. Without it there cannot be education, since it is the process of intellectually interacting with content that results in changes in the learner's understanding, the learner's perspective, or the cognitive structures of the learner's mind. It is this type of interaction that I believe is at least partly involved in what Holmberg (1986) calls the "internal didactic conversation" when learners "talk to themselves" about the information and ideas they encounter in a text, television program, lecture, or elsewhere.

The oldest form of distance teaching that aimed to facilitate interaction with content was the didactic text. In medieval times nearly all texts were aimed at instructing, not merely informing, and certainly not at entertaining. In the nineteenth century the use of print for teaching was advanced by the invention of home study guides that accompanied a text, providing explanations of it and directions for its study. In more recent times learners have interacted with content broadcast on radio and television programs, and with electronic recordings on audiotape, videotape, and computer software. Interactive videodisc is the most advanced form of didactic interaction invented so far.

Some learning programs are solely content-interactive in nature. They are one-way communications with a subject expert (sometimes assisted by an instructional designer), intended to help distant learners in their study of the subject. No other professional teaching expertise is provided, and learning is largely self-directed. According to the findings of adult education research, the majority of the adult population undertakes self-directed study (Tough 1971; Penland 1977; Hiemstra 1982).

Learner-Instructor Interaction

The second type of interaction-regarded as essential by many educators, and as highly desirable by many learners-is interaction between the learner and the expert who prepared the subject material, or some other

expert acting as instructor. In this interaction, distance instructors attempt to achieve aims held in common with all other educators. First having planned or been given a curriculum, a program of content to be taught, they seek to stimulate or at least maintain the student's interest in what is to be taught, to motivate the student to learn, to enhance and maintain the learner's interest, including self-direction and self-motivation. Then instructors make presentations-or cause them to be made. These may be presentations of information, demonstrations of skill, or modelling of certain attitudes and values. Next instructors try to organize students' application of what is being learned, either the practice of skills that have been demonstrated, or manipulation of information and ideas that have been presented. Instructors organize evaluation to ascertain if learners are making progress, and to help decide whether to change strategies. Finally, instructors provide counsel, support, and encouragement to each learner, though the extent and nature of this support varies according to educational level of the learners, the teacher's personality and philosophy, and other factors.

The frequency and intensity of the teacher's influence on learners when there is learner-teacher interaction is much greater than when there is only learner-content interaction. In preparing instruction for learner-content interaction the educator can design written and recorded material that aims to motivate, make presentations, facilitate application, evaluate, and even provide a degree of student affective support. However, the lack of feedback from individual learner to educator makes these teaching procedures highly generalized, not individual, leaving ultimate responsibility for maintaining motivation, for interacting with the presentation, for analysing the success of application, and for diagnosing the difficulty on the learners themselves, requiring a high degree of learner autonomy.

Where interaction between learner and teacher is possible through correspondence or teleconference, the learner comes under the influence of a professional instructor and is able to draw on the experience of the professional to interact with the content in the manner that is most effective for that particular individual learner. The long recognized advantage of correspondence instruction is its individual nature. When the correspondence instructor sits with a set of student papers, there is no class; instead, the instructor enters into a dialogue with each individual, perhaps attending to the motivational aspect with one student and to the explanation of a misunderstanding with another. While the students and their instructor are attending to a common piece of presentation (usually in a set text, but quite likely on audio- or videotape), each student's response to the presentation is different, and so the response to each student is different. To some a misunderstanding is explained, to others elaborations are given, to others simplifications; for one analogies are drawn, for another supplementary readings suggested.

The instructor is especially valuable in responding to the learners' application of new knowledge. Whatever self-directed learners can do alone for self-motivation and interaction with content presented, they are vulnerable at the point of application. They do not know enough about the subject to be sure that they are 1) applying it correctly, 2) applying it as intensively or extensively as possible or desirable, or 3) aware of all the potential areas of application. It is for reality testing and feedback that interaction with an instructor is likely to be most valuable.

Learner-Learner Interaction

It is the third form of interaction, a new dimension of distance education, that will be a challenge to our thinking and practice in the 1990s. This is inter-learner interaction, between one learner and other learners, alone or in group settings, with or without the real-time presence of an instructor.

Through the history of education the class or educational group has more often than not been organized for reasons that have nothing to do with learners' needs. At present many classes are organized because the class is the only organizational form known to most teachers and because in the short term-though not usually the long term-it is the cheapest way of delivering the teaching acts of stimulation, presentation, application, evaluation, and student support.

However, learner-learner interaction among members of a class or other group is sometimes an extremely valuable resource for learning, and is sometimes even essential. Phillips, Santoro, and Kuehn (1988) describe the importance of interaction among members of an undergraduate class who had to learn skills of group interaction. With the rationale that skilled committee and other group work is essential for functioning in

modern society, especially in business, Phillips et al. taught principles of, and trained students in, effective group functioning. This is an example of content that makes group interaction especially valuable. One could study the presentation of principles of group leadership and group membership alone, or in interaction with an instructor. However, at the point of application and evaluation, the availability of a group of fellow learners becomes invaluable for learner and instructor alike. Interestingly, the researchers found they could not effectively facilitate interaction among members of a large undergraduate class in face-to-face classrooms, and turned to distance education techniques, using recorded video and computer interaction to achieve higher performance in group behaviors than they had been able to obtain in live groups. Thus, these educators gave their students the advantage of individual interaction with the instructor by electronic correspondence, and the benefits of peer group interaction by asynchronous e-mail and by synchronous computer "chatting."

Apart from teaching interaction itself, when else is inter-learner group interaction between students highly desirable? The answer to this question depends largely on the circumstances of the learners and their age, experience, and level of learner autonomy. For younger learners, the teaching task of stimulation and motivation will be assisted by peer-group interaction, though this is not particularly important for most adult and advanced learners, who tend to be self-motivated.

It is most useful for some types of presentations, such as up-to-the-minute reports from experts, and for purposes of application and evaluation. In my audio and interactive video classes, weekly presentations are shared by two or more students and last typically for an hour. This is followed by peer discussion and analysis in small groups and then feedback and further discussion. This process is successful because of the level of self-management that adult graduate students possess, and it not only acknowledges and encourages the development of their expertise but also tests it, and teaches important principles regarding the nature of knowledge and the role of the scholar as a maker of knowledge.

Applications

A significant characteristic of distance education, and a major contribution to the field of education, has been an awareness of the benefits of division of labor in teaching. With the rapid expansion of telecommunications in American education, the principle of specialization of teaching activity and use of communication medium must be applied to distinguish more deliberately among the three types of interaction described above. Educators need to organize programs to ensure maximum effectiveness of each type of interaction, and ensure they provide the type of interaction that is most suitable for the various teaching tasks of different subject areas, and for learners at different stages of development.

The main weakness of many distance education programs is their commitment to only one type of medium. When there is only one medium it is probable that only one kind of interaction is permitted or done well. While correspondence gives superior learner-content interaction and good, though slow, learner-instructor interaction, it gives no learner-learner interaction. The teleconference group is excellent for learner-learner interaction, and for some types of instructor-learner interaction, but is frequently misused for instructor presentations that could be done better by print or recorded media. In the time saved by avoiding such presentations, a teleconference could stimulate and facilitate learner-learner interaction that has been difficult or impossible to achieve in distance education until now.

In short, it is vitally important that distance educators in all media do more to plan for all three kinds of interaction, and use the expertise of educators and communication specialists in both traditional media-printed, broadcast, or recorded-and newer teleconference media.

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