Is There a Field of Educational Communications and Technology?

Robert Heinich

The president of the Association does a lot of traveling around the country speaking at many conferences and meetings. During my year as president, I talked to three different mixes of audience—sometimes to an audiovisual association, sometimes to a joint meeting of audiovisual and library people (often carried out in a subtly charged atmosphere), sometimes to an officially merged group.[1]

In the course of the year, I had at least one of my rather smug assumptions shattered. I had expected at those meetings attended by librarians to have to explain the background of the field of educational technology. I assumed that people with a library background might not understand some of the tap roots of educational technology because many of them had been somewhat outside the movement when television, programed instruction, CAI, "packaged" curricular innovations, *etc.*, were introduced and developed.

By and large, I believe my assumption was accurate, but I was encouraged by their evidences of concern with the processes of instruction which these innovations implied. But what really surprised me was the extent to which the audiovisual people, to whom I thought this would be old hat, were not aware of the broader implications of educational technology and the ways in which the developments of the last 15 or 20 years have changed the nature of the field we're in.

At the Fourth General Session of the 1972 Association for Educational Communications and Technology Convention in Minneapolis, Past-President Robert Heinich delivered a presentation entitled, "Is There a Field of Educational Communications and Technology?" This article is based on that presentation. At the time this paper was published, Robert Heinich was professor of education, Indiana University, Bloomington.

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I found that when many of the people at these meetings talk about joining the audiovisual and library groups, they are really talking about combining or not combining warehouses and warehouse personnel. Those in favor of combining see it as a way to get a bigger warehouse! Doing so *does* introduce the notion of instructional media—all of the "things" of instruction in a handy one-stop location. (Assuming, of course, that balance among the "things" is maintained and all services continued—but that's another story.) Often missing from this picture, however, is the concept of instructional technology. There is little thought, for example, given to the process of instructional development—and assisting teachers select materials is *not* instructional development. Housing of resources and their distribution is of chief concern.

This has brought us to a crossroads in the historic development of the media field. Up to now, the world of media hasn't experienced the division that occurred in the world of books a long time ago. Librarians have long lived with the distinction between textbooks and library (resource) books. The former is the province of the curriculum people, while the latter falls under the jurisdiction of the librarian. How easy it is for someone brought up in that tradition to slip comfortably from "library books" to "library media," not even consciously realizing that "text media" is the logical companion term. But do we really want the world of media to split this way? Do we really want text media to wander over into the curriculum department, thereby probably losing the participation in the curriculum development process inherent in instructional technology? Are we really only concerned with the supplementary resources of instruction? For example, when dealing with a program such as BSCS, do the media components of the instructional system and how they function within the program fall within our area of expertise and influence, or are we concerned only with those additional biology materials added to the library (or IMC)? In other words, what is the nature of our participation in the instructional process?

As I said before, up to now the world of media has not been split, but media warehousing, historically simply a consequence of instructional decision making, if allowed to become a thing in itself, can be the occasion for an unwanted change. I say unwanted because I don't believe we really seek the split. I think this is the larger issue raised by the presentation, "The Common Quest," at the Special General Session at the Minneapolis Convention. The issue is not whether it is a good thing to bring all media together but, rather, what does bringing them together mean to us in terms of a broader vision.

Historically, the service concept inherent in warehousing fits an instructional configuration not amenable to the full potential of educational technology. The steps of traditional instructional planning and implementation tend to follow a linear, sequential arrangement. While some interaction certainly takes place, the different groups of people represented by the boxes in Figure 1 tend to make discrete decisions, passing along those decisions down the line to the next group. Feedback from the learner normally is monitored only by the same group (teachers) making the specific instructional decisions. Evaluation in this scheme of things is a private process.

Instructional technology, on the other hand, requires that goal setting, curriculum planning, and instructional implementation teams work together in

Figure 1

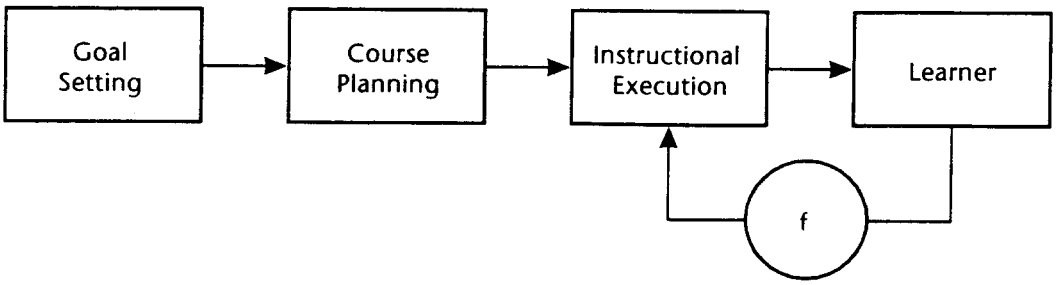
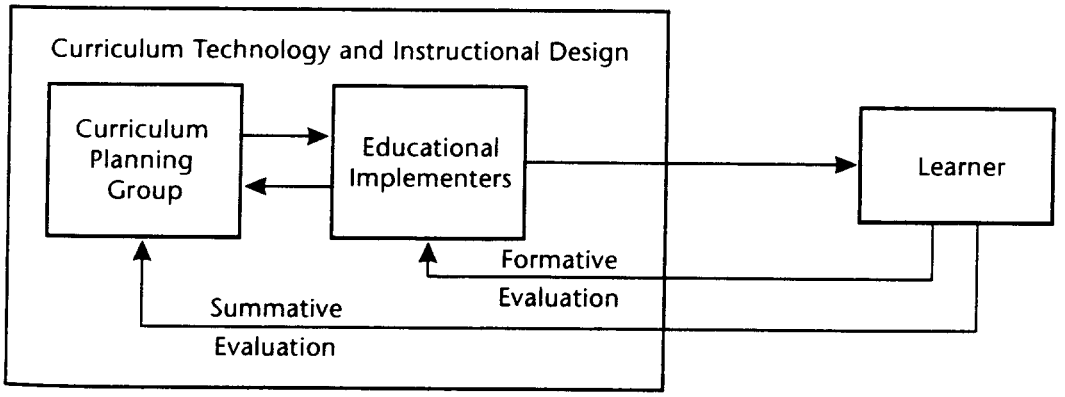


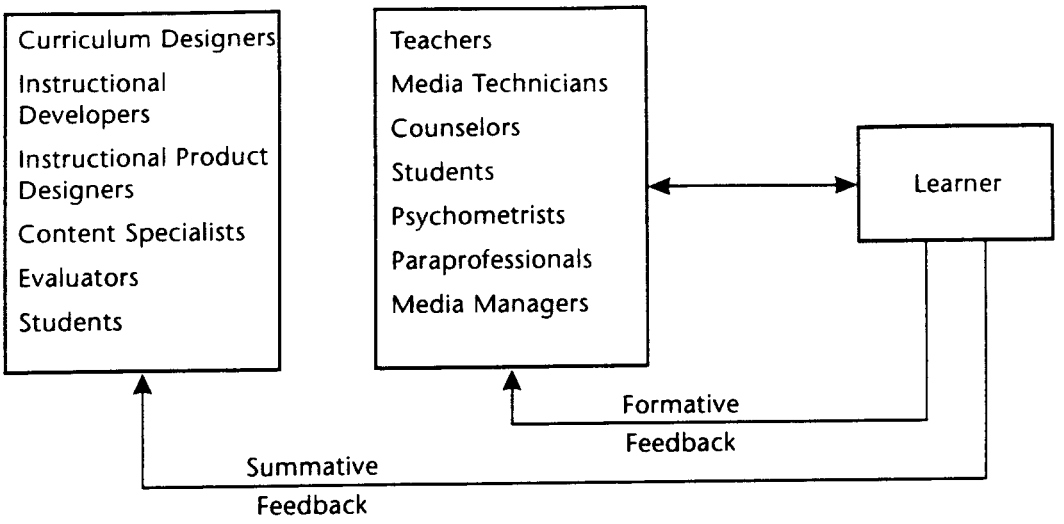
Figure 2



planning the instructional process. Decisions that once could be delayed until the moment of interface with the student now must be built into the system design. Parallel rather than linear planning and decision making are characteristic of what I have referred to in Figure 2 as, "Curriculum Technology and Instructional Design"—an awkward phrase, perhaps, but one which does imply that technological processes can be applied to curricular as well as instructional analysis. In this configuration, the planning group and implementers work together within a framework of shared responsibility. Evaluation also becomes a shared responsibility and as a result is transformed into a "public" process.

The principle of accountability is counter to that of exclusivity of evaluation, producing a good deal of the current unease that teachers have about manifestations of accountability, such as cost-effectiveness. From our vantage point, we must remember that television, programed instruction, and other system approaches to instruction have contributed significantly to the notion that evaluation of instructional performance must be a "public" (open) process,

Figure 3



and not the responsibility solely of those who instruct. Evaluation of televised instruction is inherently open to all who view it—students, teachers, supervisors, and, very often, the public. The try-out and revision process of programed instruction is at the very heart of accountability—if the student doesn't learn, the program is at fault. In fact, a fundamental axiom of our field is that technology makes instruction visible. Technology "records" instruction, bringing to open view a process that traditionally remains invisible behind closed classroom doors.

Two kinds of evaluation have long been integral parts of the media field: one to provide data to those responsible for designing media so that revisions may be made on the basis of tryouts with samples of the target audience; the other to provide data to those responsible for curricular and instructional planning so that products can be evaluated on the basis of effectiveness with the intended population. These two kinds of evaluation have recently been labeled formative and summative respectively. Figure 2 shows how each serves the appropriate group.

Figure 3 expands the diagram to illustrate the kinds of professional specialties involved in each of the two main groups in Figure 2. These lists are by no means inclusive, simply illustrative. Notice that content specialists, not teachers, are listed in the planning group. Teachers haven't been "invented" yet. They do appear in the implementation group. Similarly, evaluators appear at the left, psychometrists at the right; instructional product designers at the left, media technicians at the right. These examples are chosen deliberately to show differences in function between the two activities. In practice, many may be the same people who must be skilled at adjusting role to function being performed.

This approach to instructional development makes it possible to rearrange instructional relationships regardless of our institutional configurations. The learner can become the center of the process. We don't necessarily need intermediaries between curriculum planning, instructional resources, and the learner: these resources can be made available to learners directly. Technology is a way of increasing the options available to students, bringing to them the best we have.

Two broad trends in technology underscore the above and have within them the power to affect profoundly our educational institutions. One is our capability, through cable and satellite, to deliver instruction wherever the learner is. The second, through cartridges, cassettes, and print, allows the student to take instruction with him wherever he goes. Both challenge the territoriality of our current institutions. Together they can create new institutional configurations.

Two examples are the Open University and the off-campus degree programs. The Open University in England is predicated on the assumption that almost all instructional needs of students can be taken care of through space and time—by telecommunications and Her Majesty's postal service. The way in which instruction is designed at the open university is probably the best current exemplar of instructional technology.

Let's return to Figure 3 and a closer look at the field we're in. The broad categories of professional concern to our field can be listed as:

- curricular design
- instructional design
- instructional product design
- evaluation of instructional products
- media service management
- media production

. . .

- broad-band delivery systems

Our roles in the first two are participatory; these are the two areas of broad system planning by interdisciplinary teams. In the others, however, we can and should be responsible for direction. By instructional product design I mean the development of reliable, replicable instruments of instruction based on learner analysis, task analysis, and environmental design and evaluation. How well skilled we are in this area may be the key to participation in instructional and curricular design. If our expertise stops at the media service management level (the warehouse concept), the likelihood of our being involved in curricular and instructional design decreases sharply.

I have appended broad-band delivery systems primarily to warn us not to allow separation of delivery systems from the instructional design concept. We must retain professional concern for how content is organized as well as how it is delivered.

I would like to make a point by further reducing the field to three classes of function:

Domain of Instructional Technology

1. Curricular and Instructional Design
2. Instructional Product Design
3. Media Services

A deep concern of mine, after traveling around last year, is that we tend to base certification on item three, media services, ignoring the other areas. Too frequently, *programs* are based solely on item three. Sometimes I found a tendency to regard the district level program simply as a projection of the building program. The district level is where leadership in the broad perspective of instructional technology can best take place, and to define the district program as a servant to the building program is to throw away our chief path to professional growth in the schools. We must *base* our programs and our top levels of certification on curricular and instructional design.

I realize it is difficult for anyone raised in a service tradition to assume a more central curricular and instructional role, but it must be done. This is not to say that every person in the field must respond to this new challenge and responsibility; but it *is* saying that every *program* should. My plea to those who choose not to respond is don't get in the way of the program—stand aside, keep your still needed function, and let one of the new breed carry the program forward.

Yes, there *is* a field of educational communications and technology with a large cluster of professional specialties that logically belong within our historic purview. Whether we will be able to maintain the cluster as a cohesive unit or whether it will fragment is still to be seen. The answer, of course, depends on our response. The easy route is to define us in reference to media services. If we do, given current pressures, we can expect to see paraprofessionals moving into what we thought to be professional positions. The safe route is the larger vision of the broad framework of educational communications and technology.

Notes

1. Please bear with my use of outmoded vocabulary. I'm deliberately using those terms to separate origins of professional orientation and offer apologies to media generalists, specialists, instructional technologists, et al.