

# Towards a Definition of Educational Technology

Denis Hlynka

What is educational technology? The question is simple; the answer surprisingly complex. There are two contributing factors which make a simple definition difficult: the variety of synonymous terminology for identical concepts; and at least two distinct mainstream definitions for the field.

This short paper will examine the following questions:

1. Why is the definitional issue important?
2. What are the other terms used for the field?
3. What are the two basic definitions of educational technology?
4. Is there a solution to the media terminology maze?

## Definition Important?

It is almost paradoxical that a group of professionals in the broader field of communication have a basic problem in communicating what they are about. Yet such appears to be the case.

The following illustration should serve to put the problem in perspective. Consider three books, reasonably well known in the field, all with similar titles. They are *Instructional Technology: Its nature and use* (1979); *Proceedings of the Canadian symposium on instructional technology* (1980); and *Educational technology in curriculum development* (1974). The titles would suggest that the books are at least related in content. They're not. The first deals with the general field of educational media. Topics include the non-print media: film, television, photography, graphics, programmed instruction, and the like. The second title focuses upon one specific type of educational media, namely computer applications to education. Yet the broader "Instructional Technology" term was selected, but without the equivalently broad coverage. The third title does not deal with any kind of media hardware, whether electronic, or otherwise. Indeed the preface states:

*Educational Technology is not to be confused with electronic gadgetry. . . Even if the sockets were to be filled in and the secret of electricity lost forever, we should still need*

*educational technology.*

(Rowntree, 1974, p. 1)  
The focus of this book, one quickly perceives, is the application to curriculum of a systems engineering philosophy . . . define, develop, evaluate, disseminate.

Yet another recent book has used the term educational technology to refer specifically to the high technology of satellites, dial access, videotext and the like. And, one last example: B.F. Skinner's *The technology of teaching* (1968) deals with none of these, but rather presents an expansion of Skinner's behavioristic philosophy.

Does it really matter? Obviously it does. It matters when authors and professionals take identical terms to have disparate meanings. It matters when such usage is regular. And it matters when those authors and writers assume that the readers' definition of the concept is identical to their own.

In short, the current literature is perpetrating confusion.

## Terminology

If on the one hand educational technology seems to have many implicit meanings, too, unfortunately are there many terms representing the field. Here are a handful:

audiovisual education  
audiovisual communication  
audiovisual technology  
educational media  
educational technology  
instructional technology  
educational communications and technology  
instructional development and technology  
instructional development  
instructional design  
instructional media  
and, (my favourite!)  
educational media communications and technology.

But surely, you say, these terms have clearly different meanings. Unfortunately the best one can say is that for some individuals, these terms are indeed conceptually different. But for other individuals, many

of the terms are conceptually synonymous.

The simplest distinction is a historical one. The term audiovisual was predominantly used in the 1930's and 40's. But educational media gradually became the preferred term in the 50's as it became obvious that the audiovisual designation narrowed "media" to only audio and visual varieties. As more systematic bases for media were explored, the term educational technology became the preferred designation.

Thus the Department of Audiovisual Instruction (DAVI) became the Association of Educational Communication and Technology (AECT); the Educational Media Association of Canada (EMAC) became the Association for Media and Technology in Education in Canada (AMTEC); and texts which went through more than one edition were characterized by significant title changes. Illustrative of these is the Haney & Ulmer text *Educational media and the teacher* (1970) which in the second 1975 edition became *Educational communications and technology: An introduction for teachers*. Or, from Wittich and Schuller, the 1962 *Audiovisual materials: Their nature and use*, became *Instructional technology: Its nature and use* in 1973.

## Basic meaning

The problem becomes simpler when one realizes that two distinct views of educational technology have developed. Saettler (1968) has suggested that these views can be more carefully distinguished as the physical science view and the behavioral science view.

The physical science view is a hardware approach. This view sees educational technology as primarily concerned with media, with audiovisual aids, with machines. The aim of the physical science view is to increase the impact of teaching . . . to improve instructional efficiency.

The behavioral science view takes a different starting point, reaches a different conclusion. In this view, technology is defined as the practical application of science. Thus educational technology is the practical appli-

cation to education of the laws, rules, and heuristics of educational psychology and educational communications, and general systems theory to education. In this view, media are not a necessary component. Yet to the extent that media play an integral role in the teaching/learning process, the role of media is more central and often more justifiable than in the physical science view. The aim of the behavioral science view is to increase the impact on learning — to improve instructional effectiveness.

Salomon (1974) summarizes the dichotomy succinctly:

*Since the AV movement has yielded little in terms of consistent findings or conceptual guidelines, more attention has been given recently to instructional technology in either one of two senses. It has become either the application of tools, or, the application of learning theory. . . the alleged underlying basic science of education. . . to the problems of media. (p. 383)*

The recent literature of the field is characterized by a general acceptance of these two views of educational technology, with some attempt by theorists to explore alternatives. Davies (1971) uses the dichotomy as the basis of his now classic text *The management of learning*, then expands into a trichotomy with educational technology-3 grounded in systems and management theory. Other classification attempts, for example David Mitchell (1979), have suggested a five-fold division of educational technology. These he labels as:

- ET-1 Educational psycho-technology
- ET-2 Educational information and communications technology
- ET-3 Educational management technology
- ET-4 Educational systems technology
- ET-5 Educational planning technology.

While useful, the classification does become somewhat unwieldy.

Finally, the work of the definitional committee of the Association for Educational Communications and Technology (AECT),

the major professional organization in North America which focuses exclusively on educational technology, is essential reading. The AECT definition however, is a difficult one, which cannot easily be stated in a few words. Rather, an entire book was deemed necessary to examine, explore and probe the concept as a field, a theoretic construct, and as a profession.

Nevertheless, the key to the AECT definition appears to be the relationship among:

1. the learner
2. the learning resources
3. the educational development functions
4. the educational management functions

The "complete" and "official" AECT definition reads as follows:

*Educational technology is a complex, integrated process involving people, procedures, ideas, devices and organization, for analyzing problems, and devising, implementing, evaluating and managing solutions to those problems, involved in all aspects of human learning. In educational technology, the solutions to problems take the form of all the Learning Resources that are designed and/or selected and/or utilized to bring about learning; they are identified as Messages, People, Materials, Devices, Techniques, and Settings. The processes for analyzing problems, and devising, implementing and evaluating these solutions are identified by the Educational Development Functions of Research-Theory, Design, Production, Evaluation-Selection, Logistics, and Utilization. The processes of directing or coordinating one or more of these functions are identified by the Educational Management Functions of Organization Management and Personnel Management. The relationships among these elements are shown by the Domain of Educational Technology Model. Educational technology is often confused with "technology in education" and "instructional technology." (p. 153)*

The definition thus presented has without doubt been carefully and logically considered. Unfortunately, it has one major

problem in that it does not communicate to the layman. It does not adequately tell others what we are all about.

#### Solution?

There is indeed a solution to the problem. That solution, however, lies NOT in arbitrarily selecting one of the definitions and stipulating that this shall henceforth be THE definition. Nor is attempting a composite definition which covers every possible contingency especially helpful.

Rather the solution must be centered in an honest attempt by all of us to communicate our own definitional foci and constraints at all times to all our audiences. It is our responsibility to stipulate clearly the definition under which we are currently operating.

Further, and simultaneous to the above, we must continually monitor the field outside of our own personal domain to keep abreast of current directions and trends.

For a final word we turn to J. Gass, the director of the Center for Educational Research and Innovation, from a report published in 1971 by the OECD under the title *Educational technology: The design and implementation of learning systems*. His comment at once shows the complimentary and integrative possibility between the physical science and behavioral science views, and at the same time, projects the possibilities for the future:

*The simple lesson . . . is that there is no technological miracle in education. Neither the television camera, nor the computer, nor programmed learning can provide "instant" education. . . Educational technology is not a bag of mechanical tricks, but the organized design and implementation of learning systems taking advantage of, but not expecting miracles from modern communications methods, visual aids, classroom organization and teaching methods.*

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## Memorial University's ETV Centre Goes Public

Duane B. Starcher

*Welcome to PLAYBACK. From now until 10:30 this evening we will show the television programs that you request. Phone 737-7999 and ask to see any of the 1,000 titles now in our library. Your selection will be shown when you want to see it. If you don't yet have your copy of our PLAYBACK catalogue, give your name and address to be included on our mailing list. It will be sent to you without charge.*

*Our telephone number again — 737-7999. This is your opportunity to program our channel.*

The PLAYBACK service began in November, 1978 with a collection of about 100 titles and perhaps 15 per cent of the cable-franchised area actually connected.

On March 27, 1979, we gave a small prize for the first 1,000 PLAYBACKS shown.

On March 31, 1980, we passed the 5,000 mark. (By the way, these figures are for actual PLAYBACKS and don't include the many requests turned away for being fully booked.)

On April 2, 1981 a young boy home sick from school called us and became the receiver of our 10,000th PLAYBACK, only two years and four months from the beginning of the service.

#### Service Ends

On May 7, 1981, because Memorial University received a budget allotment from the Newfoundland Provincial Government between \$8-9 million less than it requested, PLAYBACK was suspended. The service had been a huge success, fully booked every day. It had grown from an initial collection of 100 titles into a resource of 1,000 titles and was the mainstay of Memorial University Television, ETV's public channel. It gave the public a reactive form of television, and the university a screen presence of over fifty hours a week, plus prime-time scheduled programming each evening. PLAYBACK was our trademark. Unfortunately, it was also the only portion of the budget, short of releasing staff members, where any real savings could be made.

An exciting experiment in resource-model television, reactive to public demand and a successful application of cable television to education has been abandoned for want of

funds to run it. This paper will examine the operating model plus describe a plan to extend Memorial University Television island-wide by microwave. Lastly it will speculate on the future in serving the province by satellite distribution, two directions we were working on and had indeed prototyped before the financial ax fell.

" . . . we had no illusions that we could recapitulate the history of public television as it had developed out of the universities in the United States."

#### ETV, the Centre and Newfoundland

When we began to encourage the University to activate a public channel via cable, the ETV Centre already had a successful decade behind it, producing credit courses for videotape distribution throughout the province and providing many media services in television, engineering and photography to the entire university. Suffice it to say that we have been extremely busy in distance education, on-campus production, experimentation in telemedicine, teleconferencing, satellites and other hardware projects. We have solid technical and human core in place on which to build.

As has come even clearer lately, Newfoundland is not a wealthy society and while it has adequately supported its growing university for most of the last fifteen years, Memorial has always operated most of its programs at the borderline of standards accepted as minimal by institutions of similar size in the rest of North America. So, we had no illusions that we could recapitulate the history of public television as it had developed out of the universities in the United States. The American educational broadcasting was built in the mid-1950's upon the television production centres of the wealthier universities, centres that sprang from departments of speech, drama, journalism and the fine arts. By contrast, Memorial, even today, has no departments of speech, drama, journalism or fine arts. Unlike the post-war boom years of the 1950's, our own

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Duane B. Starcher is Director of Educational Television at Memorial University at St. John's, Newfoundland.