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ABSTRACT

Thinking of technology and media in relation to a concept of lifelong learning requires a shift in perceptions of learning systems in the direction of increased innovation. Two limitations in current definitions of technology and media which must be overcome in future definitions are: (1) seeing them as contemporary phenomena which sprang from nowhere, and (2) seeing them merely as mechanical devices without regard to the process of interaction which their use imposes on the learner. The application of technology and media to lifelong learning requires a rationale on the part of both teachers and learners to enable them to understand the effects created by media and technology over their lives. The United Kingdom's Open University has developed a rationale based on human concerns which coordinates the efforts of teachers and BBC production personnel in reaching a large audience of working adults, but the learner needs to develop a rationale for using technology in self-determined learning projects. ERIC relates directly to the relationship between media and lifelong learning because it provides the kind of interaction between the learner and the computer which encourages systematic and logical thinking, and which permits the learner to become increasingly independent and sophisticated in the pursuit of lifelong learning. (JR)

Technology and Media for Lifelong Learning: What Can ERIC Contribute?

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"Technology and Media for Lifelong Learning:

What Can ERIC Contribute?"

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Of all the declarations made concerning the hope of technology for educational advancement, this one from the UNESCO Report Learning To Be seems the most inspired:

> Science and technology must become essential components in any educational enterprise; they must be incorporated into all educational activity intended for children, young people and adults, in order to help the individual to control social energies as well as natural and productive ones - thereby achieving mastery over himself, his choices and actions...[1]

But to think of technology and media in relation to a concept of lifelong learning is to require a rather abrupt shift in perceptions of learning systems. The traditional ones - schools, colleges, and universities - have come under sharp attack recently by critics like Goodman,[2] Silberman,[3] Illich,[4] and others. Although radical changes have been suggested, and even abolition of those institutions, there have also been expressions of concern to find ways to modify these learning systems and to expand and develop alternative systems, in order to serve larger segments of the population.

Some of the impetus for alternative systems has come from a number of significant futurologic studies, appearing during the last three years. The trend is clearly away from the old concept of terminal education toward a concept of lifelong learning which, if pursued seriously, would call for alternative learning systems of a highly individualized nature and the assumption by the educational media of increasingly significant roles (Faure;[5] Carnegie;[6] Ontario;[2] Alberta;[8]). If anyone is skeptical about the potential of technology and media for lifelong learning, he need only remind himself of McLuhan's explanation of his famous dictum that

"the medium is the message." As he says, "this is merely to say that the personal and social consequences of any medium - that is, of any extension of ourselves - result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology."[9] And, according to Slade, we are actually dealing with "two languages...both of them very powerful. One transmits data in motion. The other transmits the image in motion. One is the computer, the other film, television...."[10]

Two problems confront us in attempting to define technology and media. One is the rather common view of technology as a contemporary phenomenon that sprang out of nowhere. Gillett informs us, "the word means the science of construction and has been used to mean the extension of tools...."[11] The other problem is that technology and media are often treated as interchangeable. But "contemporary writers see technology as a constellation of interlocking systems and activities which get work done with a constantly-diminishing input of human labor, or, more simply, the organization of knowledge for achievement of practical purposes."[12] Media, by contrast, are regarded as devices through which the "systems" operate. This view is confirmed in Gillett's discussion of educational technology:

> In common usage, [it] means all the newer media used for instructional purposes. Though the concept certainly embraces equipment, it is much more complex and dynamic than mere devices used to aid teaching and learning. Educational technology, in the broad sense, is a systematic way of designing, applying, and evaluating the total process of teaching and learning.[13]

The literature of adult education reveals that the media have frequently been described in such terms, that is, as instructional tools with which to increase the effectiveness of methods and techniques.[14] In this context, the term "hardware" has commonly been applied to the media,[15] indicating that it consists of physical equipment (record-players, tape recorders, etc.) useful in facilitating the learning process. In short, the media have been accorded

a subsidiary or, at best, an ancillary role in adult education. This view of the media overlooks the powerful pull exerted by them, as described by McLuhan and Slade, the interaction that occurs with the listener or viewer. On that basis, Alter[16] and Carlson[17] hold that television is not merely an audio-visual aid, but a method. Perhaps a future definition or theory of media will go much farther to embrace Saettler's three categories based on the communication process: the "linguistic, iconic, and kinesic":

> Linguistic media, in the simplest sense, would consist of words, that is, language. They would also include such digital language as numbers or mathematical symbols. Iconic media would include the symbolic representation of patterns and things or may include the actual object or thing itself. Kinesic media would comprise body movement in a general sense, including posture, gesture, facial expression, voice inflection or any non-verbal manifestations of which the organism is capable, as well as any communication clues which may be present in any context.[18]

To turn to the concept of lifelong learning, it has received special attention over the past two decades. In 1955, Grattan alluded to it indirectly in his monumental historical perspective on adult education, In Quest of Knowledge. He wrote that "no education that has a terminal point can ever fully meet the needs of life, whether the terminal point is reached at 14, 18, 22, or 26."[19] And, in 1959, McGhee proposed the "learning society" in these words:

> Questions in education now trumpeted through the land as of utmost importance will fade away in a very few years in the face of an inexorable pattern of living which requires an education more embracing than any yet known, for more people than ever before, and from the cradle to the grave...Yes, there is some reason to think that we are developing a "Learning Society." Less frequently now does a man of any intelligence speak of education as an experience or discipline he has had.[20]

More recently, we have the French concept of education permanente, which includes the following: "...elements of basic education (...in France from age 6 to 16), vocational schooling (generally outside the period of compulsory schooling) and further education in the dual form of further vocational training and opportunities for cultural leisure pursuits."[21] A basic principle of education permanente is continuity between the education of young people and the education of adults - but not continuity in its usual sense of no break or interruption. Rather, there is provision for the young person and the adult whose education has been interrupted to resume it later at the point where they left off.[22] The concept of "recurrent education" embraces

> ...post-secondary education (that) is organized on a recurring basis, that all people, after completing upper secondary education, go out into a job, that after some time at work they take another period of education, then return to a job again, pass through another period of education and so on....[23]

It is generally accepted that "learning" involves a lasting change of behaviour as a result of experience. The experience itself embraces such things as the gathering of information and the acquisition of intellectual and social skills whereby to put this information to work for whatever purpose the learner has in mind. Here, Houle's definition of a learner provides a framework:

> One who increases his skill, his knowledge, or his sensitiveness. This result may be brought about as a result of purposefully educational effort on his part, purposefully educational effort on the part of an educator, or as a by-product of random activity or one designed to achieve essentially non educational purposes.[24]

All three dimensions - skill, knowledge, and sensitiveness - are incorporated by Kidd into his perception of lifelong learning, to which he adds these aspects: perpendicular, horizontal, and depth. In this spatial metaphor, the

perpendicular includes formal learning throughout the life-span from nursery school through post-doctoral work. The horizontal envisages breaking through the artificial barriers surrounding a given field of study to unite with other fields in a cross-disciplinary pattern. Kidd's third aspect, depth, transcends all formal approaches to reach almost a metaphysic. It is, in his words, "learning responding to simple needs on up, and to the most agonizing or most sublime search for the truth that 'sets us free'."[25]

The application of technology and media to lifelong learning requires us to establish a rationale, so that people might understand the effects, even the controls, created by media and technology over their lives. Also, a rationale might diminish some of the frustrations that have dimmed the initial shining faith in the power of the media for educational purposes. Here is Ellul's pessimistic warning:

> We have completed our examination of the monolithic technical world that is coming to be. It is vanity to pretend it can be checked or guided. Indeed, the human race is beginning confusedly to understand at last that it is living in a new and unfamiliar universe. The new order was meant to be a buffer between man and nature. Unfortunately, it has evolved autonomously in such a way that man has lost all contact with his natural framework and has to do only with the organized technical intermediary which sustains relations both with the world of life and the world of brute matter. Enclosed within his artificial creation, man finds that there is "no exit"; that he cannot pierce the shell of technology to find again the ancient milieu to which he was adapted for hundreds of thousands of years.[26]

As if in reply, Husén assures us:

> The appearance of tomorrow's society does not follow in any clear-cut mechanical way from the scientific and technological potentials we have today, and probably not from the ones at our command tomorrow either. The crux is if and how we intend to use these potentials. That is determined by the social preferences, i.e., by the prevailing values.[27]

Wedemeyer[28] offers a plan which he believes an institution should study before it decides to apply technology and media to instruction. He suggests that the key to success is developing, in Phase I, a rationale which emphasizes human and humane concerns. These concerns spring from a value system that has as its primary goal the personal development of the learners. Only after defining these missions or goals are Phase II, software and development, and Phase III, hardware procurement, brought together.

The United Kingdom's Open University, is an organization that has actually developed a rationale based on human concerns, specifically the needs of a large audience of working adults. Because these learners remain in their homes, the rationale required cooperation between the academic and the broadcaster in designing educational programs. This model presents a striking example of what can be accomplished through such a partnership. It has impelled BBC production teams to organize the television and radio components of a course with the course teams, which include the academics along with other individuals responsible for the non-broadcast media materials.[29] Thus, in the case of the Open University, the problem which Ohliger reported has never reared its head:

> When you have two agencies cooperating - educational institutions and the mass media - in a common endeavor, the project is not always of sufficient concern to either party for them to be able to sustain the idea for very long. Each has a fear of the other party determining its objectives.[30]

To this point, this discussion has focused on the desirability of an organization's developing a rationale for applying technology to instruction. Equally important is the recognition that there is a need for the learner to develop a rationale for the use of technology in self-determined learning projects. Such a rationale requires him to identify a number of steps. In

the first stage, the preliminary steps include setting an action goal, assessing his interests, seeking information about certain opportunities, choosing the appropriate knowledge or skill, estimating benefits from learning, and estimating costs in relation to benefits. In the second stage, the adult learner decides on a planner, which may be himself, media (i.e., a programmed textbook), a learning consultant, or a group. Whatever choice or combination of choices the individual makes from all those options will form the basis of his rationale for lifelong learning.[31]

Having examined the concepts of technology and media and their implications to lifelong learning, including the need for a stated rationale, I would like to turn the key concern of this address -- the contribution that ERIC might make. ERIC stands for Educational Resources Information Center This system of 16 Clearinghouses was established in 1967 and is funded by the National Institute of Education. You will recall that Slade discusses what he calls "two languages":

> One transmits data in motion. The other transmits the image in motion. One is the computer, the other film, television...[32]

The significance of the computer for the use of ERIC is that it enables one to search out the material he desires from an enormous collection of 200,000 documents on research, curriculum, and project reports. It seems appropriate at this point to take a closer look at what happens when a computer search is undertaken.

Multi - Media Presentation

What is the significance of the ERIC system for lifelong learning? Obviously, both the adult educator and the learner have for the first time

quick and easy access to documents including those that are fugitive. From this collection, the adult educator can choose those that would be most helpful in meeting the needs of students. The students, in turn, can do their own searches in areas that are of interest to them.

In the process, the learner will interact with the computer in ways that are bound to make him more logical and systematic in his thinking. The computer search that I showed you illustrates the careful coordination and complex relationships that the learner must understand in order to use the system effectively. As Tiedeman says

> The...position from which I speak suggests that talk about media cannot look in one direction only. It cannot look solely toward facts, data, information in isolation from persons and processes. I hold that the reciprocal interaction between the knower and known entails a "transactional" perspective and an array of procedures more aptly denoted by the notion of mediation. The final turn of this argument is that, because of the interplay of the tacit and articulate dimensions of knowing in the personal act of learning, the experience of mediation is that of a massage. In other words, we inevitably encounter the new with a habitual tensing of our intellectual musculature, with the result that its meaning takes initial form after that which we have long known and to which we have accommodated. Only after we have worked with (and perhaps more importantly, been worked on by) a new possibility do we relax to the point of seeing more clearly that something new has indeed been going on in, as well as around, us...[33]

One of the most important implications of this discussion is that the student becomes increasingly independent and more sophisticated in his pursuit of lifelong learning. Relying less upon formal instructional processes, he will approach the ideal described by Tough:

> The adult learner of the future will be highly competent in deciding what to learn and planning and arranging his own learning. He will successfully diagnose and solve almost any problem or difficulty that arises. He will obtain appropriate help competently and quickly, but only when necessary.[34]

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