Learner Involvement: A Review of the Elements of More Effective Distance Education

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Abstract: Three factors have particular relevance for the designers of instruction for adult distance learners: 1) means and resources by which independence (Le., learner control) is supported and nurtured; 2) access to different interaction levels and 3) availability and ease of use of different technology platforms.
To promote a high level of learner involvement in distance instruction/learning, instructional developers and designers should strongly consider what weight will be given these factors. Systematic program and course design which attends to independence. interaction and technology should result in more effective distance education.

Résumé: Trois facteurs ont une importance particulière pour les concepteurs de programme d'enseignement à distance pour adultes: 1) les moyens et les ressources par lesquels l'indépendance (c.-a.-d. le contrôle de l'étudiant) est supportée et favorisée; 2) l'accès à des différents niveaux d'interaction et 3) la disponibilité et la facilité d'utilisation de différentes technologies.
Afin de promouvoir un niveau élevé d'implication de la part de l'apprenant à distance, les concepteurs en éducation devraient considérer l'importance accordée à ces trois facteurs. Les programmes et les cours systéematiques qui mènent à l'indépendance, à l'interaction et à la technologie devraient résulter en des programmes d'éducation à distance plus efficaces.

The applications for media and technology in our post-industrial society, our "electronic cottage" society and our "electronic highway" culture must be re-thought, re-organized and re-confïgured to address better the changing needs of the individuals who comprise the sub-groups of this society. The historical utilization of educational media - e.g., film, video and computer - based learning materials, and their variants - can no longer serve as the model for education in the future. This appears to be especially true for distance learning environments where interaction, asynchronous uses and heterogeneous audiences are being served. There currently exists a plethora of educational opportunities at the post- secondary level which attests to the

needs of adult and young learners. For prospective learners, there exists a wide range of diverse choices, far beyond the restricted application of traditional correspondence-like courses and programs which were the norm only a short time ago. This diversity and range of opportunity has resulted in the search for new, novel and innovative technological delivery mechanisms by those with the responsibility for creating, delivering and evaluating these educational opportunities.

MOTIVATION FOR CHANGE

Innovation in the ways and means of instructing and learning, as it applies to individuals who are forced by circumstance to take their instruction at the workplace or the home, the vacation cottage or the office in the high rise, can be dealt with in a number of perspectives. One commonly cited view is that learning can be enhanced by via the introduction of new forms of instructional media. For educators, this can dictate a focus on technologies which accommodates the needs and the concerns of the learner. However, new applications of technology must do more than make the instruction more glamorous, result in a faster transmission rate, provide a cleaner electronic signal or require the instructor to become more of a techno-whiz. Rather, the technologies of instruction and the developers of the substance of instruction the instructional designers, must facilitate the learners in the taking control of their learning. This generation of interactive technologies must make it possible for distance education learners to monitor the process of learning and thereby construct and reconstruct knowledge. Further, these technologies must make it possible for distance education learners to be self-reflective and self-corrective during learning. Any instructional tools used in instruction, and particularly in distance learning, must be designed and constructed to be responsive to the needs of the individual and the iterative nature of thinking and learning. It can be anticipated that the technologies of delivery and instruction of the next decade will allow learners to pace, sequence, assess and negotiate their strategies for completing assignments and for locating, accessing and manipulating information pertinent to their situation. These new technologies (new at least in the ways in which they are employed in instruction) can offer increasingly more convenient and more effective channels of educational opportunities to a society which has become more mobile, more sophisticated and more demanding in gaining access to education and training. The clients of education clearly have become more diverse and this alone suggests that if current and future educational missions are to be fulfilled, a system that is at once flexible, individualistic and comprehensive must be adopted. This scenario suggests a just-in-time education/training model be incorporated into what educational institutions do.

INDEPENDENCE, INTERACTIVITY AND TECHNOLOGY

Distance education has been confounded by the dilemma of how to construct and to communicate messages which are germane to the course or program under consideration and at the same time of how to deal with the issue of accommodating the needs of the learners when it is now recognized more than ever before that learners learn in different ways and at various times and locations. The aspects most often missing from distance education course development models are the provisions for activities which can be conceptualized as being appropriate for learners who are independent learners by nature and where the content can be delivered in forms which allow the learner to manipulate the materials in an independent fashion.

INDEPENDENCE

Historically, the independent learner has been viewed as someone who was working in isolation with little or no involvement with either the instructor, tutor or other learners. More recently, the independent learner may be described as one who may choose to be involved or not to be involved in interactive instruction elements in the context of a formal lesson or program. The instructional design solution is to provide alternatives for the independent learner - for example, (a) watching or listening to broadcast programs (or audiocassette/videocassette configurations) and responding in written form such as term papers, reviews, journals; (b) reflective, personal musings of some kind; (c) computer-based learning, where the learner is working alone at a computer terminal (without connections such as would be the case as with e-mail). The inclusion however, of the aforementioned electronic connection, quite suddenly places the scenario in the domain of interactive instruction.

What has been traditionally been considered good course design has now been identified as being inadequate for many of the clients of the distance-delivering institutions. That is, the concern in course development remains how the designer provides for learners who range from dependent to independent. As well, there is the concern for integrating the opportunities for interaction deemed so essential by most designers. Superimposed on the above two issues in distance education is the question of how the technologies of instruction are most appropriately employed and which technologies are suitable in which instructional situations.

INTERACTION

Interaction has been defined in various ways with various purposes in mind by distance education authors. Interaction itself can take many forms all based on the level of involvement by the participants of the instructional experience. For this discussion, the definition used by Daniel and Marquis (1983) is cited in order to make the point that the issue at hand, as far as the debate over interaction needs is concerned, is indeed a most complex one. Daniel and Marquis use a somewhat restricted definition for explaining the activities in distance education as taking place when "the student is in two-way contact with another person (or persons) in such a way as to elicit from them reactions and responses which are specific to his own requests or contributions". In this definition, there is a technological reference made to teaching activities involving telecommunication systems. In education generally and in distance education in particular, the emergence of the newer technologies have increasingly featured greater opportunities for interaction. These innovative technologies of distance education are defined by Rice (1984) as technologies "that allow or facilitate interactivity among users or between users and information". In a similar vein, Lundin (1989) has suggested six levels of interaction which are identifiable when telecommunication systems are used for the distance delivery of instruction. He describes these levels as:

Level 1: 'reaction' as a form of interaction with prepared audio (radio) and video (television) broadcast. This is a voluntary, usually passive and, therefore an ineffective and often unproductive kind of interaction;

Level 2: 'parallel participation' in which the program shows activities and asks listeners or viewers to carry out the same activities. For example, 'Play School' and yoga lessons on television;

Level 3: 'limited interaction' in which the participant has choices regarding the exploration of a fixed data base. For example, viewdata (Viatel Telidon) is claimed to be interactive in this way, as are most data bases and programmed learning;

Level 4: 'responses' requested as a form of interaction built into the program software. For example, a 30 minute audio or videotape can be produced in such a way as to keep a student involved for up to a week or two to study by requesting certain activities and investigations to be carried out, then returning to the tape, and so on;

Level 5: 'simulated' interaction in which the program acts as a catalyst for local, real, live interaction among participants;

Level 6: 'live' transactional interaction at a distance- i.e., interaction by which participants can, by comments and questions, contribute to the creation of the unique content or data base which becomes the product of the program or event. This interaction can be both synchronous (e.g., audio and video teleconferencing) or asynchronous (e.g., computer conferencing).

Education, regardless of format or'environment, is a social process and therefore some form of interaction can be assumed to be desirable. This can be considered even though there exists some research evidence indicating that the level of interaction may not have an overall impact on performance, but does affect learners in matters of being at ease with the methods and enjoying the instruction (Richie and Newby, 1989). For the professional distance educator, the concerns of interaction can have several pervasive implications. Quality instructional materials should include in the process, the considerations of learning styles, of teaching styles, of course planning and the type of distance education delivery methods to be employed. Clearly to disregard or to be unaware of these concerns is to directly affect the quality of the programs and courses being developed.

TECHNOLOGY

The role of technology in distance learning, and indeed in instruction and training generally, has been debated for some time in the professional literature. The relative merits and limitations of various formats has discussed by Wilkinson (1980), Clark (1983), Carlson and Ross, Sullivan and Tennyson (1992). For the distance education arena, this can especially pertinent as the technologies of distance education are so integral to the process. Authors such as Clark (1983) have made a strong case for debunking the notion that, in cases in which more sophisticated technologies exist, more effective instruction results. Edling and Paulson (1972) on the other hand have pointed out that technology can do the following with certainty, accuracy and speed: (a) make information permanent, (b) make information more accessible, and (c) make information different. Recent developments in the technologies of distance education have seen a movement away from those systems which merely deliver the pre-programmed material of the instructor (that is, distribute the notes, the overhead transparencies, the video clips, etc.) to strategies which allow for increased flexibility and hence independence of the learner. The appearance of such innovations as local-area networks, optical storage (including CD-I), telecommunications and collaborative group

software hold much promise for distance education instructors and learners. As learners gain access to remote local-area networks (LANs) and as distance educators makes more and better use of such technologies as recordable CD-ROM, audiographic systems, videoconferencing and specialized software designed for real-time group interaction, the enhancements of distance education delivery will likely result in more effective learning. What is needed is for a model of course development which provides for an appropriate balance between pedagogy and technology and, if done successfully, will result in benefits to the expanding community of adult learners.

How to best utilize the technologies of distance education? Romiszowski (1988) pointed out a major deficiency when he noted that the means to overcome some apparent limitations of distance education were urgently required. He cited several difficulties, namely; the impersonality, the inflexibility and limitations of centralized systems of teaching and learning as being obstacles to the expansion of meaningful instruction to learners at a distance. He noted that "distance education can be interactive, can involve groups as well as individuals, can be totally private and/or one-to-one when required and can be learner-controlled." Barnard (1992) echoes these sentiments in his observation that the merging of computer and video technology, which has given rise to multi-media, will open new avenues of communication and "remove the barriers of time and distance" between learner/learner and instructor/learner. Microcomputer-based systems which allow for the integration of text, high-resolution graphics, digital sound, still- and full-motion video and which can access external sites (server or peer-to-peer LANs, bulletin boards, individuals) via modem will give all members of a distance-delivered course the tools to interact with any one or all of the group at virtually any time they wish. Other smaller-scale technologies (e.g., CD-ROM reader, VCR) will lend strong support to the "stand-alone" learner.

OTHER CONCERNS

Distance educators have long carried on the discussion of the relationship between learning, interaction and the role of the learner. References to "active learners" and "interactive learning" abound in the literature as do the references to the importance of feedback to the learner. These terms are loaded with multiple meanings that depend on situational factors. One can conceive of the meaning of "active learning" as being as simple a manoeuvre as pushing the "play" button on a VCR and of "interactive learning" occurring when the learner is required to perform simple manipulations of learning materials such as changing the tapes in the audio cassette player. Clearly these interpretations of "active learning" and "interactive learning" are restrictive and limited and do not convey the true meanings of the terms as described in the dis-

tance education literature. What is required in these instances is deeper meaning so the researchers can go about the business of hypothesis-generation. There must be encouraged in the literature a greater sense of which technological strategies are reactive and which are proactive. It is suggested that instructional designers identify ways that distance education technologies can be used in proactive ways. In the example of computers being used in distance instruction, designers might avoid using the devices as tutors but rather as a tool to solve problems - of assisting the learner in formulating novel approaches to dealing with new and complex situations - and of putting into the hands of learners a set of tools which can help them become active rather than passive learners - i.e., inquiry learners rather than plodders in the library or the classroom. In this way, the device can become another way in which learners can learn rather than another way in which instructors can teach. This can become important to the instructional designer where the tool (the schema where instruction is viewed from the perspective of the role of the learner) is the focus for the design of the course or program and the computer (or any other technological device). In this way, the designer can conceptualize and implement alternative ways to think about and design technology-based instruction.

CONCLUSIONS

It is now more apparent than ever before that no one medium can facilitate learning better than any other medium or that any one medium can suffice for all instructional applications. What does appear to matter are the methods and models employed in the systematic design and development of the courseware. Clearly, what distance educators must attend to in the design process are the elements of effective design (Dick and Carey, 1992). Considerations such as the analysis of the learning outcomes and the media characteristics required to achieve the desired performances or knowledge need to be addressed. Those technology systems that accommodate learner-controlled pacing and encourage learner independence should be considered for the courseware design. Technologies which are flexible by nature and allow high participatory intervention or interaction by individual learners are ones to be considered for use. By focussing on the design of the learning materials rather than on the technologies, the designer can move to ensure that critical knowledge or performance concerns are identified and accommodated. As well, accurate and manageable goals are to be included, with instructional strategies which are suitable for the content and the clients. With these considerations in mind the learning materials aimed at the distance learner can be made to be more effective.

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