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Distance Education: Touching With Technology

By

Kevin Smith
DISTANCE EDUCATION: TOUCHING WITH TECHNOLOGY

A Paper presented by Kevin Smith, President of the International Council for Distance Education at the CIDAJ AMIC Seminar on "Training Needs in the Use of Media for Distance Education in Asia", Singapore 8-11 June, 1987.

Introduction

I have called my paper today, "Distance Education: Touching with Technology" because I think it is important in a Seminar such as this (where many, if not most, of you represent large-scale technological distance education systems) to emphasise that the media in distance education has at least two major functions: firstly, the obvious one of delivering a message but secondly, and just as importantly, providing a Human Touch that all learners need, particularly distance learners. To distance learners, then, the medium is not only the message (to use Marshall McLuhan's aphorism (1964)) but it also has to be the 'massage' as well.

Accordingly, I hope that in this presentation I want to indicate various forms that this 'massage' might assume and provide some guidelines to help us when we are faced with media choices and are determining how we might best exploit those media that we do select.

Firstly, though, I would like to pose several questions that assailed me as soon as I began to explore the theme of this Seminar.

Interpreting the theme

The objectives of the seminar (See Appendix 1), raise a series of questions that I want to ask before I feel that I can usefully exchange ideas and experiences with you. First of all, I notice that the statement refers to 'the region' (Asia), on the one hand, and 'advanced countries', on the other. Does this imply that the use of media in distance education in Asia should require different principles, different strategies, different procedures from those of more advanced countries or does it merely imply the existence of different cultural traditions and educational systems? Secondly, by 'what criteria could we define 'success', 'innovations' and 'advances' in using media in distance education programs? Is success to be measured in terms of participation and equity, that is, in quantitative terms, measuring the extent to which doors could be opened? Or is it to be gauged in terms of retaining students, of completion or graduation rates, so that there is evidence of the open door not becoming merely a revolving door? But what about the quality of learning? Can we, as educators, ignore this and 'measure our 'successes' in quantitative terms alone? What kind of
learners do we aim to produce and how well can our teaching strategies be reconciled with our educational philosophies? In other words, does the process produce the quality product that we seek, and if so, in the numbers that we need and in the most cost-effective manner? And, thirdly, what is the "new"technology as opposed to the 'old'? What constitutes 'advance' or 'innovation'? We know that what is one institution's innovation may well be a well-tested routine in another, depending upon the various levels of development that are reached by the respective institutions. Furthermore, how should we interpret the meaning of 'training needs' and for whom? for teachers? planners? students? technicians? producers? managers and administrators? The very diversity of expertise of the personnel required in a complex distance education team provides a daunting challenge for those responsible for creating relevant and constructive staff development programs.

I shall not be attempting to deal with all these issues but shall touch upon some of them. I see my role here to-day, however, as essentially one of attempting to identify some underlying principles that might set the parameters for later discussion about the use of media in distance education and might have universal application despite the diversity of the cultures which are represented here to-day. In the process, some definition of terms will be essential if we are to talk to one another and not past one another over the next few days.

What is distance education?

There are many different definitions of distance education but I think that most of us would agree that it includes the separation of teacher and learner, the involvement of an educational organisation, the use of media and the provision of two-way communication between the teacher and the learner. Of all the characteristics, the emphasis on 'two-way communication' is the most central to this Seminar on the use of media, for it is the interactive nature of the media on which I shall be focussing attention in this presentation.

This definition of distance education can be fleshed out a little if we consider what is necessary for an effective system.

What makes an effective distance education system?

Gough (1980) identifies eight characteristics of an effective distance education system:

- a sound philosophical basis;
- an appropriate organisational structure;
- adequate resource allocation.
the use of specialised educational techniques in designing learning experiences, writing self-instructional materials, developing appropriate teaching strategies, and providing adequate student access to learning resources;

* production processes that allow learning materials to be published in pedagogically sound and attractive format using audio, video and print as appropriate;

* an efficient course delivery system in its widest sense, including the development of an effective support system to meet the needs of students at a distance both before enrolment and as enrolled students;

* programs for staff training and development;

* evaluation and monitoring procedures to improve the system.

Most of these points are self-explanatory, but the point about an explicit educational philosophy to provide a basis for developing a distance education system that is cohesive, rational and relevant for the context in which it has to operate is extremely important and may need some elaboration.

Such a philosophy can, perhaps, be best understood in terms of the question "What kind of learner are we hoping to produce?"

What kind of learner?

The answer will, of course, vary with the level of learning required and the degree of abstraction inherent in the disciplines to be taught.

At the level of higher education, at least, I would suggest that we should be aiming at developing learners who are neither too dependent (on the teacher) nor completely independent. It should be our objective to help students to recognise their own strengths, skills and needs, trust their own energies and intuition, deal with confusion and ambiguity, clarify what they want to learn and be able to relate to others in group situations. We should be trying to produce interdependent learners, learners who enjoy a certain amount of autonomy in choosing their learning strategies (including where and when they study) and who are expected to interact from time to time directly or indirectly with academic mentors and fellow students. Consequently, there should be little conflict in this respect between the aims of distance education and traditional face-to-face teaching.

The 'New' Technology

People sometimes talk about the telephone and television as new technology. Both were invented well before the second half of this century. So what is new?

The use of the word "new" is very much a relative thing, for while the technology might not be
new in itself, its use in the context of distance education or in a particular system of distance education may well be. Some writers in this field, for example, Nigel Paine (1986) of the Scottish Council for Educational Technology, suggests that when we are talking about "new" technology we should limit its use to describe a range of technological developments which are united by one catalyst, the micro-processor. This can control an infinite number of machines from computers to cameras and when this new technology is linked to communications technologies, such as the telephone or satellite, we call it 'information technology', the ability to process and transmit massive amounts of information across vast geographical distance all within one 'black box'. Information technology, then, is about transmission, storage and retrieval of all sorts of information but the key working device is the computer, whether it be micro-, mini- or mainframe. The Seminar may, however, wish to regard 'new' technology in broader terms than this.

D.R. Garrison, (1985) suggests that technological innovations in distance education providing for two-way communication have emerged in three phases or 'generations' of delivery systems: correspondence, telecommunications and computers. By 'generation', Garrison implies the building upon previous capabilities, that is, new media being combined with older media to provide a greater range of choices for the design of effective distance education delivery systems.

Correspondence, the 'first generation', by combining the printed word with the postal system, developed an effective form of two-way communication with flexibility for the learner in the choice of time and place to study. Though it can be extremely cost-effective especially on a large-scale basis, the slow rate of interaction dependent on mail services (and, dare I suggest, the inclinations of tutors to mark assignments either promptly or otherwise) requires strong motivation on the part of students to persist in the face of difficulty. Other means of interaction are generally called for.

The 'second generation', that of telecommunications which followed, provided some alternatives.

Telecommunications refers to the electronic transmission of communications over a distance. The use of telecommunications in distance education includes the telephone and teleconferencing by audio, video and computer. The use of the telephone by a teacher is perhaps the most personalised use of telecommunications in distance education but it is logistically difficult and costly to use for masses of students, whether it be used in teletutorials in small groups or teleconferencing in larger. Furthermore, since such activities must generally be conducted in local centres which can also provide added interaction and support from other students, it means some loss of flexibility for students who have to attend according to a schedule devised by the institution rather than one that might better suit their personal circumstances. Computer 'teleconferencing' or the use of electronic mail can resolve this by allowing student and teacher to communicate at their mutual convenience, and although the rate of response may be delayed somewhat, the interaction can be quite rapid and regular.
The third phase, the computer generation, should prove to be the most dramatic of all for many societies, even those which at this stage of development may consider themselves to be unable to benefit from the new possibilities of computer-aided learning, or CAL as it is now widely known. With this technology, we are able to maximise both interaction and independence in the delivery of education at a distance. Communication is mediated in ways similar to that of an author through print media but with the tremendous added advantage of the students being given immediate feedback to their responses to the course material. Interaction in CAL is not with the computer but through the computer. The most obvious drawback, as with the use of most forms of sophisticated technology, is that CAL must be designed with great care and requires a highly-qualified design team. (Some training needed here, would you say?) Nevertheless, while access to personal computers may be limited in certain societies for some time to come, computers have become so much an integral part of school systems and the commercial world in the more advanced economies that it will soon be inexcusable for distance teaching institutions to avoid the use of this most interactive technology in their teaching strategies.

Although I believe that print will continue to be a central medium in most systems of distance education, (it is 'user friendly', portable, personal, individualised and relatively cheap), there is no doubt that the age of the computer represents our best opportunity for reducing the 'tyranny of distance', both geographical and psychological, in the years ahead and I look forward to hearing more about the varied uses of the computer, either in teaching or the management of distance education, as this Seminar progresses.

This brief overview of technological developments clearly omits important media such as radio and television, audio and video cassettes, video-discs and so on but this is deliberate as the three generations described by Garrison focus attention upon those means of delivery that essentially provide two-way communication. Radio and television can be made interactive but not before the teacher and the learner are linked by either a correspondence mode (print plus post), the telephone or computer, or a combination of these media. Only then do I believe that broadcast media can realise their full potential and become powerful teaching tools in the hands of distance educators.

Getting the mixtures right

Designing distance education programs seems to me to be about choosing between alternatives, getting the right blend of elements or finding a balance between extremes on a continuum. I have identified at least six such 'continua of choice' to shape subsequent discussion:

1. Choosing between institutional control of the teaching-learning process and student autonomy;
2. Providing opportunities for both interactive and independent learning;
3. Combining traditional and new forms of teaching to make the most of the technology that is now available and will be available to us in the future;

4. Using the media for the dual purpose of delivering the 'message' and providing the 'massage', that is, giving support to students;

5. Selecting the 'best' media-mix available to us.

I propose to examine each of these issues in turn.

1. *Institutional Control and Student Autonomy*

The real dilemma for designers of distance education courses lies in the fact that if a course is designed and structured so meticulously that learners have no choice in what they learn or how they should learn it, then at higher levels of education especially we can be criticised for inhibiting creative thinking and critical analysis. If we do attempt to provide the complete learning package that is to be digested in modules 'to be taken as prescribed' like some sort of educational medicine then we need to be aware of the possibility of two negative consequences: firstly, students may be conditioned to accepting whatever we prepare for them as the last and only word on the matter concerned, without searching beyond the course material for other analyses and interpretations; secondly, we may be ignoring the fact that students themselves can inject something very positive into a course, given some freedom of choice in their sources of information and learning strategies. If we take this idea further and argue that education aims, or should aim, at 'personal enhancement' as well as the dissemination of academic knowledge, understanding and skills, then it is important that we put a high priority on the value of 'learning to learn', and especially, learning in an independent and autonomous way, long after formal tuition ceases. Clearly, highly structured learning packages are unlikely to generate autonomous students, rather the reverse, as dependency on the system is increased.

In short, it is really a matter of striking the right balance between institutional control and student autonomy and this so-called 'balance' will, or should, weigh more heavily towards student autonomy as the teacher in this technological age gradually surrenders his or her traditional role from the authority figure and content specialist to one of being a manager of learning, using technology that allows students to exercise more flexibility in their study patterns, to interact with their materials and with their mentors and peers as they feel the need, and not only as teachers perceive their needs to be. Otherwise, it could be a case of too much teaching and not enough learning. Perhaps a guiding principle for distance educators might be, 'independent study with as much guidance as the learner needs'. Of course, the essential dilemma remains: how much guidance does the hypothetical 'average' student need?
7. Independence and Interaction

In general, distance teaching institutions aim to produce teaching material packages that are designed to stimulate an active response on the part of each student. In this sense, one might talk about individualised learning, for each student will respond to teaching strategies in a personal and idiosyncratic way. Certainly, much of our learning whether on-campus or off, takes the form of internalised dialogue or private reasoning. But at the same time, most institutions consider it desirable to provide opportunities for interacting not only with course materials but with other people including tutors and other students. For this reason, the question of a blend of independent and interactive learning is important in designing a distance education course.

Interactive elements can take many forms and do not necessarily imply face-to-face meetings. Daniel and Marquis (1979), in a paper called "Getting the Mixture Right", used the term to cover "those activities where the student is in two-way contact with another person (or persons) in such a way as to elicit from him (sic) reactions and responses which are specific to the student's own requests or contributions". Interaction over telecommunications systems clearly qualified on this criterion as did the more obvious elements of personal contact, of tutoring and counselling, discussion groups, residential schools and staff visits to students in their home areas.

More recently, however, Daniel (1983) re-examined his thesis "in the light of both an improved understanding of the function of interaction in distance education and technological advances" and came to the conclusion that some of the activities which he had formerly classified as 'independent' could now be seen as 'interactive'. The use of the audio cassette by a student at home, for example, was once seen as a form of independent study but on further consideration it was realised that the audio cassette can be an interactive medium in itself even without any involvement of tutors or other staff once the cassette has been despatched to the student. For just the mere necessity of loading, starting and stopping the cassette at points that reflect his or her own needs (for instance, to hear a passage again), as well as the natural breaks introduced by the course designer, keeps the student active and uses as many senses as possible. The key feature of the cassette, therefore, is that the student controls when he or she plays it and how often he or she stops and starts it. This is also of great advantage to the course designer since it facilitates the integration of other media. Compared with the passivity of the learning situation of a one-way radio broadcast, the imaginative use of audio-cassettes has much to recommend it. The same kind of comparison could be made between delivering programs by radio and television broadcasts, on the one hand, and by sending out the identical programs in the form of audio and video-cassettes for individual or local group use, on the other.

Such a re-classification is of significance to us in distance education if our decisions about the selection and use of different media are influenced by our desire to ensure that our 'media mix' incorporates an acceptable level of interactive learning to supplement more independent and perhaps passive forms.
3. Combining the old and new educational forms

I recently came across an article back home which suggested that educational traditions (in Australia, as elsewhere) are holding back the use of educational technology, even in distance education which is recognized as innovative compared to general classroom teaching. The author, Peter Smith (1986) maintained that:

"...until we are prepared to change some of our fundamental attitudes about education, we as educators will never fully capitalise on the potential benefits of technology, and nor will we enable our students to reap all the benefits."

He argued that formal schooling in England was really an extension of the "Socratic model" where people who wanted to learn formed a relationship with a person who had something to teach them. When distance education came upon the scene, many of us adhered to a model based essentially on the methodology of face-to-face instruction to groups, merely 'externalising' it through the use of print, audio and video materials, and sometimes supplemented with face-to-face teaching in groups itself. His main point is that "we must not stop at using technology to translate the traditional educational model into an external form". We should consider using technology to escape from the traditional model and offer forms of education that offer much greater learner control, allow more rapid response to training and educational needs in society and do not have a cost structure that is linearly related to student participation. If we do not, then Smith claims, "We will only use technology to turbo-charge the horse and buggy!"

Tony Bates, Reader in Research Methods at the U.K. Open University, described the problem of changing attitudes in established institutions in the following way:

"Any institution which can move gracefully from its current position to one where new technology plays a more central role will have combined the daring of a free-fall parachutist with the balance of an ice-skater..."

For many institutions represented here at the Seminar, however, I imagine that their very establishment was based on the premise that teaching strategies would generally be non-traditional and technologically-oriented because of the massive scale of their operations. No 'horse and buggy' for them to turbo-charge! And yet, do they escape this equine metaphor altogether? In any case, should they?

For it is important to bear in mind the fact that, as we seek to develop new educational forms, new delivery systems and new relationships between teachers and learners, in short, in our search for increased flexibility for students and economies of scale, there is much that is worth preserving from amongst traditional values and practices. The essential challenge to us in distance education is to combine the best features of the old with the new.
Without doubt, what is worth striving to retain or imitate from the dynamics of good traditional teaching are the personal relationships that are so important between teacher and learner and among groups of learners themselves. For learning generally benefits from being a social experience as well as an intellectual one, although we all know that social interaction with a teacher or one's peers does not have to be constant or even regular. Indeed, most of our learning as adults takes place privately in solitude. The Human Touch, as I call it, in its various forms, either personal (face-to-face) or mediated (conveyed through interactive technology) should be an important element of any distance education system. In the context of the large-scale institution, the media needs to be used imaginatively, as well as providing local support in the form of 'intermediaries', to use Sewart's term (1981), if we are to ensure that learners do not feel isolated and left to fend for themselves. The Medium, therefore, should not only deliver the Message but provide the Massage as well.

4. Mediating the Message and the Massage

a) The Message
The central role for the use of media is the provision of two-way communication between the teacher and the learner, including the delivery of subject matter or content (the message) to the student and the return of his or her responses to this message in various forms such as individual assignments (spoken or written), teletutonals and groups discussions, computer aided learning and so on. With thoughtful planning and judicious selection of the media available, the nature of learning at a distance can be enhanced. This insistence on interactive elements allows mass produced materials to cater more adequately for individual differences than the traditional teaching generally does, especially in the lecture room situation where large audiences sit passively, sometimes in a state of understanding, often in confusion, but without the lecturer knowing or necessarily caring if his or her messages are being decoded correctly.

The use of a range of technologies, especially those that allow a degree of student control or autonomy over learning techniques and the pace of learning, makes sense in a learning context such as distance education where individual differences in student characteristics, backgrounds and preferences are generally most diverse. But there is no evidence to suggest that any particular medium is inherently more effective in delivering a message than another. What really counts is the functional nature of the teaching package itself, that is, the efficacy of the instructional message. In short, it is not the medium but the message that is most important.

Designing the message in distance education requires careful analysis of the structure of the subject matter, assessing the learning attributes of students, specifying course objectives in clearly defined terms, selecting appropriate learning experiences in a logical sequence, designing various forms of assessment and developing evaluative procedures for diagnosing the effectiveness of the
overall teaching strategies. But even with an effective message or well-designed learning package, the great unknown that we face is what an increase in the use of technology will do to students' thinking. What kind of learner will it produce? There are some who argue that television is moving society away from valuing objective rational thinking to more impressionistic and intuitive thinking, while others fear that computer-based learning tends towards 'closed' or convergent thinking. Basically, though, no-one knows.

b) The Massage

I believe, however, that there is a second role for technology to play if the door that it has the power to open for hundreds or thousands who would otherwise be denied an education, does not lead to frustration, disillusionment or failure. I am referring here to the power of the media, not only to deliver the message, but to provide the *massage*, or the Human Touch.

In certain contexts, the Human Touch can be given in a direct personal way: through local tutors or by central staff visiting students, or by requiring students to attend classes in local study centres or at the central campus itself. This personal approach is, to my mind, one that should not be abandoned lightly. In Australia, the scale of operations allows such a strategy. Even the U.K. Open University, despite an original intake of 25000 students in 1971 and a growth in enrolments to somewhere around 80000, has always placed importance upon the provision of local tutors and counsellors. However, I do not quite know how the tutoring and counselling functions for numbers that prevail in some Asian open universities (around half a million at STOU in Thailand and approximately one million at the Radio and T.V. University in China, for example) can be provided for, without the need to devise ways of reaching out to individual students mainly through the power of communications technology, if only because the costs involved for the institution and the students to make contact in a personal way may be prohibitive. The provision of student support in a variety of ways through the media is, I suspect, a challenge that the very large-scale institutions represented at this Seminar will be wrestling with for some time to come and I shall be interested to hear what measures they have adopted in this very difficult but critical area of activity.

The 'massage', of course, can assume a variety of forms. It should be contained in the materials themselves, for example, in the conversational tone of the presentation of printed material such as study guides, audio and video cassettes or teletutorials, in the encouraging way that assignments are marked and commented upon and in the prompt and efficient way that such feedback is provided. It also should be reflected in the organisational and management aspects of a distance education system, for without a caring administration, much of the effectiveness of the learning packages will be lost. I venture to say that unless the organisational aspects of the system really work well at all times and especially in times of intense pressure, the objectives of course writers, producers and instructional designers will count for very little. And yet, I am still disappointed by the number of systems that have committed so much of their resources to the
production of materials and their mode of delivery that there seems to be insufficient left over to create the complex infrastructure that is need to underpin the teaching-learning processes.

We all know that computers can be used for interactive learning, providing rapid, if not instant, feedback and yet allowing students flexibility in their study patterns and styles. This technology of the 'third generation' is certainly a key to future developments in distance education. But no less importantly, computers can be used as a basis for a sophisticated and comprehensive student support system, complementing personal tutorial and counselling services, as has been done at the U.K. Open University. Dr David Stewart, a Vice-President of ICDE and Director of Regional Academic Services at the O.U., must take much of the credit for the recent upgrading of the regional information system which allows the University to assist selectively and efficiently the work of its intermediaries, the tutor-counsellors, in their support of individual students. The University is able to alert tutor-counsellors, at any time throughout the year, to potential student problems in terms of the data held on its central computer file. The tutor-counsellor is able to interpret this information in the light if his or her accumulated knowledge of the student as an individual. Thus despite its large scale of operation, the O.U. is able to maintain a continuity of concern for its students as individuals, a characteristic that I believe has been more responsible for its success than even the high quality of its course materials.

How, then, are we to reconcile educational objectives, teaching strategies and student needs? Clearly, the selection of the 'right' media-mix for each of our particular circumstances is critical.

5. The Best Media Mix?

What is the 'best' media mix? The short answer is, of course, that there is no best mix per se, that each medium has its own characteristics which make it potentially useful in particular circumstances. The extent to which its potential is fully realised depends primarily upon choices being made in the light of an instructional design process. The quality of the educational process, then, depends more upon the expertise of the teaching team that on any inherent quality of the instructional media.

As far as the selection of media is concerned, then, we need to ask the question:

*To what extent is the use of a range of media matched appropriately with course objectives, student characteristics, the nature of the subject matter, the assessment demands and particular teaching strategies?*

Unfortunately, I doubt if many of us here to-day have enjoyed the luxury of selecting media in distance education based purely upon educational criteria. Even if we were able to, the task would
be difficult enough, for until there is a generally agreed, comprehensive and convincing theory of teaching and learning which can explain differences in how people learn from different media, the problem of selecting the right medium or mix of media will remain. I suspect, however, that some of us are not only restricted to using technology to turbo-charge a 'horse and buggy', but often we find that the cart (or buggy) is in front of the horse. By this, I mean that instead of our educational philosophies and preferred teaching strategies determining the media that should be used, we find that all too often such criteria as availability, accessibility, acceptability and cost have narrowed the options so much that we are presented with the technology that can be utilised and our teaching strategies have to be designed around the technology. In other words, we are being 'technology-driven'! No wonder, then, that sometimes we have difficulty in deciding whether the turbo-charge mechanism (the technology) should be attached to the horse or the cart (that is, serve as a first priority, the teacher or the learner).

But we do have choices despite these constraints, as the diversity of our systems indicates. As I see it, the essential factors affecting our choices of media are the level of technological sophistication of the society in which the system has to operate, our educational philosophies and objectives regarding the nature of the learner to be served, the level of support that is considered an integral part of the educational process and, finally, the costs involved.

At the risk of over-simplification, I sometimes think of using media in distance education in terms of two dimensions:

a) the level of sophistication of technology to be used: 'the Tech'
b) the extent to which the student will be encouraged to interact with staff and other students: 'the Touch'

A particular medium might then be placed in a matrix showing, on the one hand, its level of sophistication and, on the other, its interactive capability. Four combinations of 'Tech' and 'Touch' emerge and it can be an interesting exercise to place the media that we use in our own systems in this matrix, with a view to determining whether the technology we are using is really providing that degree of 'Touch' that we think our investment should yield. (See Appendix 2).

Some examples might clarify this form of categorisation:

Square 1. LOW TECH/LOW TOUCH: textbook, printed notes and lectures, tape-slide kit, home-study kits.

Square 2. LOW TECH/HIGH TOUCH: audio cassette, audio vision, teleconference, teletutorial.

Square 3. HIGH TECH/HIGH TOUCH: interactive radio, interactive video, computer-aided learning (CAL), electronic mail.

Square 4. HIGH TECH/LOW TOUCH: one-way radio or television.
Such categorisation without a particular context can be no more than approximate since it is the particular way that a medium is used and the part it plays in a mix of media that will determine how much it inspires interactive learning, provides encouragement, stimulates motivation and generally 'massages' the learner. Furthermore, a medium can be multi-functional.

So this brings me to the main theme of the Seminar: How do we set about imparting some of the special skills that are required if we are to 'get the mixtures right', mixtures that contain such ingredients as student autonomy, interactive learning, old and new teaching methodologies, instructional design principles, student support procedures and a range of media?

Staff development: blending old and new skills

When one contemplates the issue of training needs for users of the media in distance education, here in this region or elsewhere, the same basic question obtains: "Training needs for whom?", for as someone once said of distance education, "It is no longer an individual who teaches but the institution." By this is meant that the teaching process is no longer the exclusive domain of the subject matter expert who traditionally has assumed authority; the responsibility has to be shared among those with specialist skills in such areas as instructional design, media production, publishing, computer programming, management and so on.

In devising a staff development program, much will depend upon the organisational model that has been set up, as well as the size of the operation and the variety of specialist staff that have been recruited to perform their respective roles. In the large-scale open universities, the concept of a course team is well established, although the size and variety of specialisms to be found in such teams may differ considerably. In smaller dual-mode institutions with which I am most familiar, the traditional teacher assumes total responsibility for the writing of courses, the selection of media, the marking of assignments and making the final assessment of students through examinations. Yet in both models, the need exists for an infrastructure that ensures a professional exchange between subject matter and instructional design experts. In the latter model, it is now common to see attempts being made to transfer instructional design skills to the subject matter expert, the academic, so that these skills are reflected in the material as it is being produced. This has several advantages in that the academic feels that he or she retains complete control over the teaching process, then is a more positive understanding of the role of instructional design in improving the material and consequently less resistance to change and innovation as opportunities present themselves.

There is no doubt that distance education represents a major innovation for the majority of teachers and academics in several ways: in terms of lifestyle, in teaching methodology and in new areas of responsibility and accountability. Teaching becomes a 'corporate' enterprise rather than an individual one; there is a feeling that a process is being bureaucratised. Teaching becomes highly
visible and performance is to all intents and purposes 'monitored' by outsiders, such as academic peers, distance education administrators and the general public.

It follows, therefore, that any attempt to develop materials for distance teaching must be related to the individuals involved in the innovation. The changes described above constitute a threat to the ego, challenge previous training and appear to impinge on one's autonomy. Even more, the changes may be perceived by subject matter specialists as 'de-skilling' by rendering previous teaching experience inadequate or irrelevant. So what are the implications for staff development if it is decided that 'old dogs must be taught new tricks'?

Dr Gene Hall (1979), who has specialised in developing systematic procedures for adopting educational innovations at his R & D Centre for Teacher Education at the University of Texas in Austin, USA, recommends that there is a need for formal and informal leaders who will be the change agents or facilitators within the group. They may come from within the organisation or from without. Whether they are the senior administrators or staff development officers or outside consultants, their function is the same: to assist users and non-users of the innovation, both individually and in groups, to enhance their confidence and competence in the adoption of the innovation. The role of the change agent is therefore an extremely critical one calling for a high degree of skill in managing interpersonal relationships, as well as being adaptable and sensitive to subtle changes in the stages of concern through which the users of an innovation commonly progress. Hall identified several 'Stages of Concern' (See Appendix 3).

**Conclusion**

Whilst this knowledge may not help you to decide what it is that should be taught or to whom in the distance education team (after all, each system will ultimately have to make its own decisions about this), I hope that these comments upon the how of a staff development program have been useful. Again, it is a matter of 'touching with technology', that is, exposing staff to new forms of technology so that they become familiar with their use, even enthusiastic about their potential for adding to existing and familiar technologies.

To introduce information technology into a distance teaching system, for example, an institution needs to examine the possibility of applying the technology to the whole range of its activities. In the case of a tertiary institution, this means looking not only at its teaching activities but also at its research, administration, consultancy and staff development activities. Introducing new technology does not mean that we discontinue using existing forms of communications such as print material, telephone, cassettes or face-to-face meetings. The new technology may lead to a decrease in the frequency of use of some of these traditional forms of communication, but generally the real test is whether the new technology enhances the existing modes of communications. If we need
assurance on this score, we should reflect upon the fact that information technology is being applied above all to the very traditional medium of print, storing and moving it and associated data around the world.

It stands to reason that the efficacy of any technological medium in providing the message and the massage will ultimately depend upon the users, in the case of distance education, the members of a course team and the students. Unless they are relaxed about using the technology involved in our programs, have ready access to it and believe that it gives them better control over the management of learning from their different particular perspectives, then neither will exploit the technology to its fullest potential. In fact, it is almost certain that in these circumstances the learner will not use the medium in the manner that it was meant to be used and much of the effort involved in the designing of the learning package will have been wasted. I am convinced that in the use of advanced or unfamiliar technology, what we have most to fear is (in the words of the late President of the United States, John F. Kennedy) "fear itself". Consequently, any training program for staff and students ideally should provide opportunities for exposure to the media before new technologies become an integral part of the educational process. This will need specialist personnel, with technical skills and the interpersonal skills to which Gene Hall refers, to introduce the idea of change into a system and to ensure that the intended 'beneficiaries'of such change, teachers and students, actually are in a position to derive some advantage from the change. This cannot be done effectively on an ad hoc basis, yet I do not know of any distance teaching institutions that can boast of system-wide staff development programs specially oriented towards 'technological literacy'.

Let us hope, therefore, that this Seminar will be successful in setting up some mechanism that will foster the development of appropriate training programs within the region and encourage participation in them across national boundaries and educational sectors.
References


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Hall, G.E. (1979) Using the individual and innovation as the frame of reference for research on change, Paper presented to the AARE Conference, Melbourne.

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Appendix 1

OBJECTIVES OF THE SEMINAR

TRAINING NEEDS IN THE USE OF MEDIA FOR DISTANCE EDUCATION IN ASIA

1. Identify the various audio-visual and mass media used in distance education in the region;

2. Analyse the problems and difficulties in using the different media or new technology;

3. Study successes and innovations in the use of media in distance education programmes;

4. Examine the advances in technology and techniques and in the principles and procedures of their use in distance education programmes in advanced countries;

5. Establish trends and directions in the future use of different media and new technology in distance education in the region;

6. Identify regional training needs in the use of media for distance education and the possibility of setting up regional facilities.
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<thead>
<tr>
<th>High Touch</th>
<th>Low Touch</th>
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<tr>
<td>High Tech</td>
<td>Low Tech</td>
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<tr>
<td>4</td>
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<tr>
<td>High Touch</td>
<td>Low Touch</td>
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<tr>
<td>High Tech</td>
<td>2</td>
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**TECHNOLOGY**

*Two Dimensions Of*
### Hall's Stages of Concern

<table>
<thead>
<tr>
<th>Stages of Concern</th>
<th>Expressions of Concern</th>
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<tbody>
<tr>
<td><strong>Impact Concerns</strong></td>
<td>I have some ideas about something that would work even better.</td>
</tr>
<tr>
<td>6 Refocussing</td>
<td>I am concerned about relating what I am doing with what other academics are doing.</td>
</tr>
<tr>
<td>5 Collaboration</td>
<td>How is my use (of the innovation) affecting the students?</td>
</tr>
<tr>
<td><strong>Task Concerns</strong></td>
<td>I seem to be spending all my time in getting material ready.</td>
</tr>
<tr>
<td>4 Consequence</td>
<td>How will using it affect me?</td>
</tr>
<tr>
<td>3 Management</td>
<td>I would like to know more about it.</td>
</tr>
<tr>
<td><strong>Self Concerns</strong></td>
<td>I am concerned about it (the innovation).</td>
</tr>
<tr>
<td>2 Personal</td>
<td></td>
</tr>
<tr>
<td>1 Informational</td>
<td></td>
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<td>0 Awareness</td>
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