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ARTICLES

Innovation in International Higher Education: The Open Universities

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Abstract

One of the most striking international developments in higher education in the past decade has been the establishment of a significant number of open universities around the world. This paper summarizes the nature of the open university movement and goes on to discuss the open universities as a case of innovation in international higher education. The paper argues that the very nature of the open learning enterprise has forced the universities associated with it to be innovative in ways and to an extent rarely realized in conventional universities. This innovation is described under the categories of organization and administration, and curriculum and instruction. The paper uses the case study literature associated with the open universities to draw examples of innovations intended but not realized, "actual" innovations, and unintended innovations. The paper concludes with some examples of potential innovations in open universities which could be of some significance in the future.

Résumé

Un des développements internationaux les plus saisissants de l'éducation supérieure dans les dix dernières années a été l'établissement d'un nombre significatif d'universités ouvertes dans le monde. Cet article dresse un sommaire de la nature du mouvement des universités ouvertes et présente ensuite celui-ci comme une occurence d'innovations dans l'éducation supérieure internationale. L'article propose l'argument que la nature même de l'entreprise des universités ouvertes a forcé les universités qui s'y sont associées à innover dans des manières et à un point rarement égalés par les universités conventionnelles. Ces innovations s'inscrivent au niveau de l'organisation et de l'administration, de l'élaboration des programmes et de l'enseignement. L'article se sert de la littérature des études de cas se rapportant aux universités ouvertes pour tirer des exemples d'innovations projetées mais non réalisées, d'innovations "réelles" et d'innovations non intentionnelles. L'article conclut en citant quelques exemples d'innovations potentielles réalisables dans le cadre des universités ouvertes, innovations qui pourraient être significatives dans l'avenir.

In a society like ours, academic patterns change more slowly than any others. In my lifetime, in England, they have crystallized rather than loosened. I used to think that it would be about as hard to change, say, the

> Oxford and Cambridge scholarship examination as to conduct a major revolution. I now believe that I was over-optimistic. (Snow, 1961)

While C.P. Snow may represent the more extreme side of the argument, there is much written in the literature regarding the imperviousness of higher education to innovation and change. Viewed against this context, it is difficult to take issue with the assertion made by Keegan and Rumble (1982, p. 24) that the "open" universities "...have been seen as the most striking development in higher education structures in recent decades..." One aspect of this striking development

Table 1. The Open Universities

INSTITUTION	DATE ESTABLISHED
University of South Africa (UNISA)	1951[1]
Open University, United Kingdom (UKOU)	1969
Universidad Nacional de Educacion, Spain (UNED, Spain)	1972
Free University of Iran, Iran (FUI)	1973[2]
Fernuniversität, Federal Republic of Germany (FeU)	1974
Everyman's University, Israel (EU)	1974
Allama Iqbal Open University, Pakistan (AIOU)	1974
Athabasca University, Canada (AU)	1975[1]
Universidad Nacional Abierta, Venezuela (UNA)	1977
Universidad Estatal a Distancia, Costa Rica (UED)	1977
Sukhothai Thammathirat Open University, Thailand (STOU)	1978
Central Radio and Television University (CRTVU) with 28 Provincial Television Universities (PTVUs), China	1978
Open University of Sri Lanka, Sri Lanka (OUSL)	1981
Open Universiteit, Netherlands (OU Neth.)	1981
Andra Pradesh Open University, India (APOU)	1982
University of the Air of Japan, Japan (UAJ)	1983
Universitas Terbuka, Indonesia (UT)	1984
Indira Gandhi National Open University, India (IGNOU)	1986
Open University of Bangladesh	Proposed[3]
Open University of Poland	Proposed[3]
Open University of France	Proposed[3]
Open University of Turkey	Proposed[3]
Open University of Nigeria	Proposed[3]
Palestinian Open University	Proposed[3]

[1]As reconstituted.

[2]Now defunct.

[3]The term "proposed" implies varying degrees of formal and informal, official and unofficial sanctioning. For example, a proposal is currently being constructed regarding the Bangladesh O.U.; the bill initially presented to the legislature for the Nigerian O.U. was rejected in 1981, but is expected to be reintroduced; a feasibility study for the Palestinian Open University was conducted by UNESCO in 1979-80; discussions have occurred regarding open universities in Poland and France, but these seem quite tentative and speculative at this time. The initiative in Turkey has culminated in the establishment of the Turkish Open Education Faculty.

This list is intended to be illustrative only. Depending on one's definition of "open university" there are (arguably) some institutions on the list that ought not to be there, and other institutions that might be added.

is the sheer number of open universities established throughout the world over the past decade and a half. The list of institutions in Table 1 illustrates this phenomenon.

This article looks at the open university movement from the point of view of innovation in international higher education. Particular innovations in the open universities are described under the categories of *organization and administration*, and *curriculum and instruction*. The article also discusses: what was intended to be innovative about the open universities; what, in fact, turned out to be innovative (and, by implication, what did not work out); and what was unintentionally innovative.

Intended innovations that were not realized are related to proposed defining characteristics of a university. This is done partly to explain why the intended innovations did not take hold, but mostly to argue that these defining characteristics must be taken into account in any innovative endeavour in university level education. The article concludes with some examples of innovations in open universities that potentially could have a significant effect in higher education in the future.

Open Learning and the Open Universities

Wedemeyer, one of the early writers and theoreticians in the field of open learning, enunciated the guiding principle that characterizes the open university concept:

> Learning is the act or process of acquiring knowledge or skill. When the adjective "open" is used to qualify "learning" we have put a name to a process of learning that is not enclosed or encumbered by barriers, that is accessible and available, not confined or concealed and that implies a continuum of access and opportunity....The ideal concept of open education would take the form of *education permanente*, open to people at all levels, cradle-to-grave. (1975, p. 125)

However, as Wedemeyer (1981, p. 63) pointed out, "openness" is not an absolute quality but rather a range of possibilities. The range of possibilities is very apparent when one examines the extent to which the open universities vary among themselves. Despite this variation, the open universities all exhibit an adherence to the spirit of open learning—and this is the essence of what makes them "open" universities.

This, of course, is not sufficient to define "open learning," for as Mackenzie, Postgate, and Scupham have observed:

> Open learning is an imprecise phrase to which a range of meanings can be, and is, attached. It eludes definition. But as an inscription to be carried in procession on a banner, gathering adherents and enthusiasms, it has great potential. For its very imprecision enables it to accommodate many different ways and aims. (1975, p. 15)

Not surprisingly, then, it has proven difficult to define what an open university is (or is not). A university may be "open" in some aspects, yet remain traditional

in others. Conversely, conventional universities may be open in ways similar to the open universities while at the same time remaining firmly rooted in their tradition. It would be convenient if we could refer to a continuum of "openness" with the traditional universities at one end, the open universities at the other, and the hybrids arranged in between according to the features of "openness" each possesses. However, for a variety of reasons this does not seem a particularly cogent characterization. First of all, there is no particular reason for regarding, say, the elimination of the constraints of time and location of study as any more or less open than the waiving of pre-established academic admissions standards. Second, the open universities—and indeed some of the conventional universities—combine open features in a kind of mix and match arrangement. Consequently, the presence or absence of specific open features is not in general, a sufficient basis for classifying universities as to degree of openness.

Dimensions of "Openness"

The spirit of the concept of openness is the idea of extending access to educational opportunity, and this may be done in many ways. For example:

1. The provision of more "places" at the university level.
2. The usual entrance requirements for admission to university may be eased or even waived altogether.
3. The constraints of having to be at a particular place at a particular time may be alleviated or lifted completely.
4. "Substantial" advance credit may be awarded for university level credit study undertaken elsewhere.
5. Some credit may be granted for non-formal learning (sometimes referred to as experiential learning).
6. Credits earned through study elsewhere may be "banked" and perhaps combined with non-formal credits or university credits currently being acquired, to be applied toward a degree at the host university.
7. Students may study independently and at a pace of their own choosing.

In addition, Wedemeyer (1981, p. 62), in his listing of ten characteristics of an open learning system, suggests that such systems: should be capable of accommodating additional students without a commensurate increase in the unit costs associated with educating the students (once a critical minimum number of students has been realized); and should "employ sound, video, film, print, and other communication—diffusion technologies as vehicles and options for mediating learning experiences."

As noted earlier, attempts to classify universities into typologies with respect to openness are prone to suffer from a certain amount of ambiguity. Nonetheless, a variety of typologies are available in the literature (e.g., Peters, 1971 [cited in Rumble & Harry, 1982]; El-Bushra, 1973; Neil, 1981). The typology used here is a slight modification of one originally formulated by Keegan and Rumble (1982).

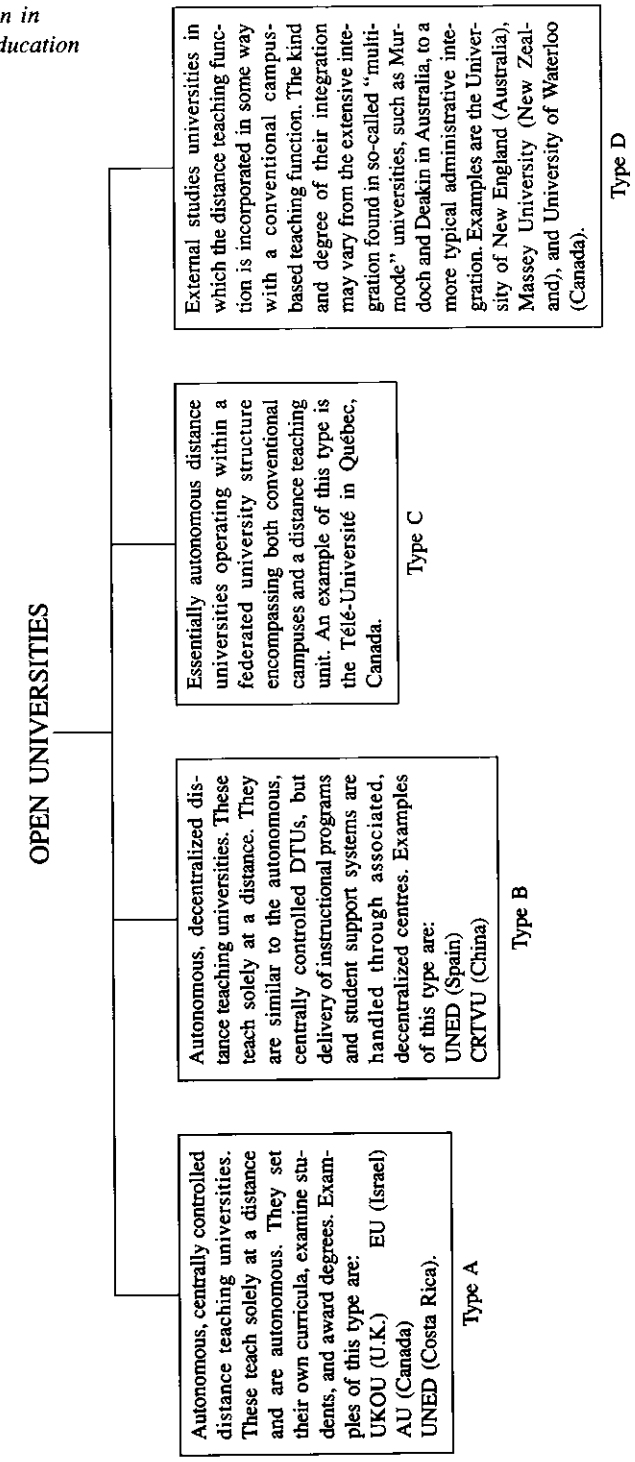

Figure 1. A typology of open universities. (Derived from: Keegan & Rumble, 1982).

For the purposes of this paper, the institutions of interest will be the autonomous distance teaching universities represented by categories A and B in Figure 1. These universities have been selected because, as distance teaching universities (DTUs) they typically embody more open features than do other universities that might also claim to be open. As Neil points out, "...openness of access is positively and highly correlated with the extent to which an institution is dedicated to distance learning" (1981, p. 37). Moreover, the DTUs were selected because they are fully autonomous in the sense that they have complete control over their curricula and the awarding of degrees. As a consequence, it is possible to look at innovative practices and their effects in these universities without the kind of confounding that could occur when similar practices are introduced into the context of the conventional university.

The Nature of a University

There is a formidable body of work on the nature of a university, and it would be a presumptuous folly to attempt to recapitulate it here. However, there is a certain sense of "universitiness" that must be proposed in order to speculate about why some innovations took hold in the open universities and some did not.

The standard characterization of a university is that it has a teaching role, a research role, and a public service role. What differentiates a university from say, a college or a polytechnic is its commitment through research to the discovery of "new knowledge" and new understandings—and it is upon this new knowledge and these new understandings that the universities' teaching is to be based. The instruments of this pursuit of "truth" are the academic faculty. The quality of a university is manifested largely through the quality of the endeavors of the academic staff. Students become educated in the liberal tradition through an exposure to and involvement in this process. They begin by acquiring a knowledge base, and in the process they simulate the systematic, scholarly inquiry that is the defining essence of a university. Ideally, as time goes by the students become more faculty-like in that they become self-directed and pursue lines of systematic inquiry by themselves. All of this is to say that universities are defined essentially by the education *process* that is followed—rather than by some specifiable or quasi-specifiable product (such as, for example, "amount learned").

The fact that practice may often belie the principle is not sufficient grounds for denying the principle. The principle must prevail or else there is no unifying concept on which to base an understanding of what a university is. This is not to say that a person would be unable to equal through some means other than a university education the amount learned or the understanding attained (however measured). It is to say that the standard is established through a university and all it implies—and not the other way around.

Innovation in the Open Universities

The discussion to this point has been intended:

1. To explain what will be meant by the term "open university" and to provide some reasonable basis on which to select a special set of open universities as illustrative examples.
2. To develop a sense of what it means to be a university, and how universities differ from other higher education institutions.

Now it is time to try to pull this together, first of all by presenting an argument that the very nature of the open learning enterprise has forced the universities associated with the enterprise to be innovative in ways and to an extent not normally realized in conventional universities. Innovations in the open universities will then be described under the categories of organization and administration, and curriculum and instruction. Examples will be drawn from the open universities, as identified earlier, to illustrate what was intended to be innovative; what in fact turned out to be innovative (and by implication, what did not); and what turned out unexpectedly to be innovative.

Organizational and Administrative Innovation

Peters (1971) has characterized distance education as a form of "industrialized" education—and so it is in the sense that much of the business of distance education is producing a product, namely the home study materials. In addition, the establishment and maintenance of an inventory of the course materials and their distribution is very much an industrial-type of function that requires organizational and administrative considerations not normally found in universities.

Production of home study materials requires that various kinds of expertise be brought together and managed effectively. There are essentially two phases to this process. The first phase may be called "creative production." In this phase a course is conceived, designed (which implies producing a course outline, selecting course materials, and specifying the instructional media to be used), and written. The second phase, that of "physical production" of the course, is where the results of the creative production phase are turned into a home study package.

At a minimum, the process of course development requires a subject matter expert to generate the content of a course. However, as originally conceived at the British Open University (UKOU) (Perry, 1977), the course team could also have a variety of other members. These might include additional subject matters experts, an editor whose expert contribution would be both substantive editing and copy editing, a visual designer who would interpret the instruction visually to facilitate spudent learning and look after aspects of the physical production of the course, and an inspructional developer who would advise on instructional strategies, assessment, and the sequencing of course material to facilitate learning.

The instructional developers, visual designers, editors, and subject matter experts would be drawn into course teams from their respective organizational homes. In the case of the UKOU, although it was presided over by a chairman, the course team seemed to exist as a unit in itself. It was generally accountable within the university only insofar as it might exceed "reasonable" limits of expenditure and "reasonable" expectations regarding a schedule for the production of the course. In other open universities, the course team has been accountable within a separate organizational unit responsible for course production. One variation of this arrangement has been to use an Instructional System Design (ISD) approach. This was the approach initially taken by Canada's Athabasca University (AU) and subsequently modified (Stringer, 1980). In this model, the instructional developer was conceived of as the manager of the process that coordinated the various contributions to produce the home study course package. Under this conceptualization the university would have a core of instructional developers, visual designers, and editors. There would be few full-time academic staff, most of the subject matter contributions coming from academics recruited from outside of the university on term definite, task specific contracts. Tutorial support required during delivery would be arranged for on the same basis.

Deakin University in Australia, where both external students and on-campus students used packaged home-study instructional materials, initially used an approach in between the AU and UKOU models (Jevons, 1984). Course development existed as a separate organizational unit headed by a Director, as was the case at AU. However, Deakin is staffed like a conventional university with resident academic faculty. In addition to their teaching responsibilities to the internal students, these faculty also are required to produce the courses they teach in a form that supports independent distance study. Consequently, virtually all the subject matter expertise that Deakin requires comes from its own academic faculty, rather than being contracted out to academics from other institutions, as was intended in the original AU model.

It is of some significance that both Athabasca University and Deakin University subsequently dissolved their course development units and folded the course production responsibilities into the traditional academic structure of Faculties (with Deans) and Departments. Academic activities now are entirely faculty centered (as opposed to the ISD orientation, as was the case previously). Administrative decisions regarding courses are now totally vested in the particular academic area responsible for the course. Editors and instructional developers are assigned to a particular program area and are directly responsible to the academic head of that program (usually a Dean).[1] It is worth pointing out that the Open Learning Institute of British Columbia (Canada) has, on the other hand, very successfully used the ISD model with its university programs (Ellis & Mugridge, 1983). Why the ISD model worked well in one context and failed in another is an

interesting question. The answer may reside in the fact that universities are fundamentally different from other institutions empowered to offer university level study—and they are fundamentally different in the sense described earlier. Although the OLI is empowered to grant baccalaureate degrees, it clearly was not intended to be a university in the full sense (hence its name). This is not to argue that the universities are "superior" institutions. It is to argue that they are predicated on a principle that must be taken into account in planning for innovation in a university. In the opinion of this author, the ISD organizational innovation did not work in the university context because the ISD point of view of education as a specifiable product is antithetical to the principle that universities are defined by what they do and how they do it.

Curricular and Instructional Innovation

Peters' (1971) point of view regarding distance education as an "industrialized" form of education, the Instructional Systems Design philosophy, and the learning objectives movement were all part of the zeitgeist that prevailed during the formative years of the first open universities. This lead to an emphasis on two of the ten characteristics of open learning systems enumerated by Wedemeyer (1981, p. 62)—namely:

1. The system requires that learning objectives be formulated in such a way as to a) be capable of serving as the basis for decisions in instructional design including evaluation; and b) permit the students to participate in, as well as be informed of, the decision-making process.
2. The system uses testing and evaluation principally to diagnose and analyze the accomplishment of specified learning objectives, including the objectives of self-directed rather than other-directed learning.

Consequently, early instructional ventures stressed the designing of instruction and the utilization of behaviorally-oriented learning objectives. The Instructional Designer (aka Instructional Developer) was seen as a major agent in this process. Instruction was viewed as a set of pedagogic principles that could be generally applied independent of subject matter. Knowledge, as embodied in the home-study course, was viewed deterministically and was regarded as an aggregation of more or less specifiable and discrete products. The philosophy of assessment changed in emphasis from the traditional normative ranking of students on some gestaltic sense of ability and achievement to a criterion—referenced style wherein testing and evaluation would be used "...principally to diagnose and analyze the accomplishments of specified learning objectives..." (Wedemeyer, 1981, p. 63).

The perspectives represented by instructional development and criterion—referenced testing have been debated virtually from their very emergence (e.g., Macdonald-Ross, 1976). It seems safe to say that with the passage of time and, in some cases, with shifts toward the traditional organizational structure focused on the academic functions, the discussion and debate has lessened (Macdonald-Ross,

1973). The structure of university distance education courses seems also to have altered with diminishing emphasis on rigorous instructional design features, especially behavioral learning objectives.

However, one of the benefits realized through the cybernetic principles inherent in the ISD philosophy has been the use of systematic feedback from students and from academic colleagues to make the system self-improving. As Daniel and Stroud (1981, p. 153) have observed:

> The revision and remake of courses is usually in the direction of improved learning effectiveness since data gathered during prior offerings is used in a systematic manner to identify problem areas. In some cases, like that of the first remake of the Open University's foundation course in mathematics, the gains made have been hailed as a breakthrough in the teaching of the discipline.

In the early stages of the open universities, there was a considerable expectation that the application of technology would play a major role in the new open learning systems. This undoubtedly was partly because such media were viewed as a relatively inexpensive means of distributing instruction to large masses of learners, with no direct relation between costs and additional increases in students. There also was a certain glamour and excitement about using technology for such purposes. This appeal was likely often used to sell the idea of an open university (as Harold Wilson did in his election campaign by talking about a new "University of the Air" [Perry, 1971]). Corresponding to the expectations for technology was a concerted attempt by many of the open universities to use multi-mediated instruction.

Particular Innovations that "Worked"

It has been observed that one of the abiding contributions of the UKOU to the open university movement was the concept of the course team (Perry, 1971). While the original formulation of the course team has undergone some evolutionary change (Riley, 1981), it remains a primary vehicle for realizing the teaching mission of an open university. The course team has proven to be the nexus of course development and course revision. It has provided a means for coordinating and managing the various functions required to produce courses—and to improve them through systematic revision.

Although the matter of cost effectiveness could bear some additional study, there is a consensus (Wagner, 1973, 1977; Snowden & Daniel, 1980; Muta, 1985) that the costs of offering university level instruction by means of home-study materials diminish (after a critical number of students are enrolled) as student numbers increase. However, as Kaye and Rumble (1981) point out, this only applies for programs and courses in which large enrollments may be achieved. This fact may drive the open universities toward an emphasis on such offerings at the expense of numerous other alternatives. This may lead to an academic imbalance in open university programming, which at some point must raise the issue of whether such imbalanced institutions are truly universities. It may also lead to the open universities having ultimately to offer more courses with low enrollments. This in turn may result in a more direct and rigid volume sensitivity.

It was stated earlier that a major expectation of the open universities was that they would substantially increase accessibility to university level instruction for people who would not otherwise have an opportunity to undertake university study. In most of the open universities—and particularly at the UKOU (Glatter & Morgan, 1978)—increasing accessibility was prompted by social policies rooted in a spirit of educational egalitarianism. In this context, accessibility was to have been increased by removing barriers usually confronting such students, such as academic admission requirements and constraints of place and time. In some of the open universities, particularly the Indonesian Open University (I Ketut Nehen, 1985), improving accessibility has been viewed primarily as a matter of increasing the number of places available in the university system.

Clearly, these innovations have been outstandingly successful, as measured by the explosive growth of open universities and of enrollments associated with them. Even though the definitions used to generate counts of students and enrollments are not standardized among the open universities and the time periods differ, the numbers are convincingly large. For example, in Perry's (1984) survey, the Sukothai Thammathirat Open University (Thailand), which commenced enrolling students in 1980, reported enrollments of about 110,000 as of July, 1983. The Universidad Nacional De Educacia A Distancia (Spain), which commenced enrolling students in 1973, reported that during the 1981-82 academic year the enrollments totalled around 62,000. The Allama Iqbal Open University (Pakistan), reported 65,000 students for 1982-83. Hawkridge and McCormick (1983) report that enrollments at the Central Radio and Television University (China) have approached a half a million each year from 1979-1981. Often the enrollment demands on various universities were so unexpectedly large that initial enrollment targets had to be revised immediately in order to absorb at least some of the pressure. This occurred at the UKOU, the Open Universiteit (Netherlands), and the STOU (Thailand), among others.

It ought to be said, however, that there is a body of opinion (particularly regarding the UKOU) that distance education is not sufficiently serving those who really need educational opportunity—those with a low level of previous education, those from lower socioeconomic groups, and those from groups that have traditionally been regarded as disadvantaged minorities. For example, in the case of the UKOU, Rumble (1982, p. 107) states: "On the face of it, the Open University has not attracted large numbers of working class or educationally deprived students into its undergraduate programme: its higher degree programme is as 'elitist' as any in Britain."

In actuality, as Glatter and Morgan (1978) have pointed out, many of the students enrolled in open universities already are well qualified academically—in fact many are sufficiently well qualified to meet the usual entrance requirements of conventional universities. In this case, students seem to be using the open universities either to top up their academic training to the point of receiving a degree, or to obtain knowledge in specialized fields (such as business, computers, etc.).

It is also interesting to note the case of the Universitas Terbuka (UT) in Indonesia which, with respect to access, was primarily intended: "To increase the absorption capacity of universities and colleges in Indonesia as a response to the explosive increase of high school graduates who seek tertiary education" (I Ketut Nehen, 1985, p. 6). Or, to say it in a somewhat different way (I Ketut Nehen, 1985), "the IOU should be attractive for high school graduates of the current year." However, the experience at both Universitas Terbuka and UKOU with students of this kind indicates that open university education is not really well suited to their needs (e.g., Woodley & McIntosh, 1980). In the case of the Universitas Terbuka, I Ketut Nehen (1985, p. 6) estimates that only about 5% of the 55,000 people enrolling in the 1984-85 academic year were current high school graduates. Evidence from the UKOU and early indications from the UT suggest that such students do not adapt well to the rigours of distance study. In addition to the problem of adopting an essentially new learning style, following a program of studies at a distance often implies a *substantially* longer period of time than is the case in a conventional university. (Note, for instance, that many open universities set restrictions on the number of courses a student may undertake in a term.)

Innovations That Did Not Work Out

As indicated earlier, there was a substantial expectation that a "technology of education" could be introduced through the open universities. The hope was that the technology would result in revolutionary approaches to teaching and learning at the university level. This was only obliquely realized—partly through the introduction of quality control through instructional systems involving course teams and a course revision process based on feedback; and partly through the industrialized processes associated with course production which resulted in a more cost-efficient method of teaching.

However, there seems little doubt that the "technological revolution" has largely not lived up to expectations. Not only has it failed to revolutionize learning, it has proven to have severe practical limitations. In a review of the use of media in distance education, Bates (1980) found that "television and radio in particular are proving to be of less significance in teaching systems or more difficult to use successfully than was originally expected." A major limitation in the use of television has been its inordinate costliness—an expense which has

been subject to a rate of inflation far exceeding any ability to attract offsetting revenue (either through government grants or through increased tuition revenue). Such costs may be defrayed through the donation of air time in government controlled broadcasting agencies or amortized somewhat if the numbers of students served is sufficiently large. However, there is also a basic paradox in using such media for distance education. Broadcasts are carried at set times. For the very substantial number of students who are truly part-time and who must squeeze their studies into a busy life consisting of work and family responsibilities, this can be a serious constraint. A partial solution is to repeat broadcast the programs. However, channel capacity is used up so quickly that for even a small number of courses, repeat broadcasting can be a problem.

Moreover, in practice it has proven next to impossible to use television and radio as effective instructional media. This is partly because such media are extremely well suited to conveying certain kinds of symbolic messages—but are very poor at supporting learning in general. Studies at the UKOU have indicated that—in spite of a major investment in instructional television programming and the consistently high quality of the programs—students were not viewing the programs (Bates, 1975). They were relying primarily on the printed course materials. In discussing research comparing the effects of various forms of educational media, Clark (1983) offers the following additional point of view:

> Five decades of research suggest that there are no learning benefits to be gained from employing different media in instruction, regardless of their obviously attractive features or advertised superiority....The best current evidence is that media are mere vehicles that deliver instruction but do not influence student achievement... (p. 445, 450).

In sum, it has been cheaper, quicker, and seemingly just as effective to produce courses that are based primarily on written material. Technology appears to have found a more appropriate role in enhancing rather than supplanting the standard print-based home study course. However, in some instances, particularly with respect to Tele-conferencing, technologies are playing a more central role in extending access to university-level study.

An interesting exception in the use of "Big Media" is to be found at the Central Radio and Television University (CRTVU) in China, and may also occur at the University of the Air Japan (UAJ). In regard to the CRTVU, Hawkridge and McCormick (1983, p. 171) point out:

> It is understandable that the Chinese television universities had to depend initially on television, compared with other distance-teaching universities elsewhere. Television offers the only means of bringing well-qualified teachers to large numbers of students simultaneously, not in their homes but in the television classes. Print is a supplement to television, the reverse of what happens in the Open University. Nevertheless, at present television is being used to teach in words, not pictures. Almost all the CRTVU

programmes consist largely of numbers and Chinese characters written on a blackboard by a teacher who speaks continuously to the board, pointing to various parts of it as he or she speaks, usually off-camera. Occasionally a diagram appears on the screen, a concession to the static iconic (still picture) mode of teaching.

Interestingly, Hawkridge and McCormick also point out that the CRTVU aspires to the range and quality of television programming that exists at the UKOU. They warn that:

> Thus it is possible that dependence on television may in time erode the success of the television universities. The more the production teams succeed in making "good" educational television, that employs the power of the medium to transmit difficult concepts, the more the students will have to rely upon self-study. With few tutors available, these students may flounder and more of them may fail than at present. (p. 172)

In addition, they point out that students will have to respond to the television programming in a very different way. They state:

> At present, they respond in much the same way as to a conventional lecture, with the amount of note-taking depending much on the correspondence between the television lecture and the accompanying textbook. Note-taking from the average Open University programme is rather difficult, by contrast, as words and numbers seldom appear on the screen and the dynamic iconic (moving picture) mode cannot be readily translated into words. Even the commentary, already in words, may not be suitable to copy down, since it is often more or less meaningless without the pictures. (p. 172)

The UAJ seems to be starting where the CRTVU is aspiring to be (Abe, 1985). The UAJ will operate its own television station, so there should be a reasonable amount of broadcasting capacity. The fact that the UAJ owns the station (located at the UAJ headquarters) gives it the all important control that is essential for such an operation. The UAJ, like the CRTVU, also will send textbooks and other printed materials to the students and will offer lessons at study centers. What the relative emphasis will be on these instructional materials is not apparent at this point. It will be interesting to see whether the UAJ will get caught up in the dilemma described by Hawkridge and McCormick.

Some "Unintended" Innovations

Some innovations have occurred in the open universities that were both unintended and unexpected. One of these has been the emergence of word processing and computer typesetting (see, for example, Cowper & Thompson, 1982). Substantial savings of time and money in course production have been realized through the integrated process made possible by these two technologies. This process has also simplified considerably the coordination of the multiple activities of writing, editing, and laying out printed material. The direction and contributions of graphic artists and visual designers in combination with the printing technology has produced extremely high quality course materials.

The visual attractiveness of the course materials coupled with the creative production typically used (with those elements of quality control mentioned previously) have resulted in another unintended innovation. The courses are often so good that they are used for teaching purposes at other institutions.

Another major unintended innovation—albeit a less than discrete one—has resulted because with open education there is little or no sense to the usual geographically based jurisdictional boundaries. The melange that is resulting is forcing some very difficult questions. Do we have a free market situation in which universities—potentially funded from the same sources—compete for essentially the same student market? How do we rationalize the expenditure of resources? How do we solve interjurisdictional coordination problems? What is a reasonable basis on which to fund universities not constrained to serve a particular geographic area? One innovative consequence that is partially a response to these issues has been the relatively recent establishment of the Open University Consortium of British Columbia (Canada).

The Potential for Further Innovation

In the longer term technology may prove to be a source of some innovation development, but perhaps in an unexpected fashion. For example, one of the most significant benefits from CAI ultimately may be what it tells us about the way people learn. Moreover, as various technologies evolve to a point where they support better two-way communication and allow students to interact in the instructional process, they will come to occupy a more central role.

Because home study materials are often of an outstanding quality, as they increase in quantity and are more readily available, there may be more inclination among conventional universities to use these as course materials for the on-campus students. Such an occurrence could do much to bolster the quality of university education generally. For example, as noted earlier, Deakin University already provides its internal students with the same set of course materials provided to external students. Whether it is possible to do this sort of thing across universities is difficult to say. Perhaps the combined duress of diminishing funding and increasing enrollments currently facing the universities would be sufficient to bring some movement in this direction. Certainly, if students begin to prefer such courses because of their uniform good quality and students can see in advance what they are getting, there may be some market force to support the provision of more of these courses.

However, the largest potential seems to reside in an extension of the concept of educational consortia. There will continue to be a demand for better coordination of credits earned at universities in general. There also will be an institutional demand for a ready source of packaged, hkme study, university courses. Perhaps the ideal consortium would be a regional or national expansion of the credit coordination style of consortium, like the British Columbia one, and a course

provider style of consortium, like the International Universities Consortium in Maryland. However, a critical condition for the success of any consortium arrangement must be a formalized and appropriate framework. A consortium established on the basis of special interest only can not be effective. If an appropriate framework can be determined, perhaps the creation of such a hybrid consortium may be a way of establishing the national presence in higher education long sought after in Canada and the United States.

Note

1. See Jevons (1984) for a more extensive account of this development at Deakin and Shale (1984) for Athabasca.

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