Resources File

The readings for this module appear in the following order below:

1  Woodley, A. 1999 ‘Doing institutional research: the role of the partisan guerrilla’, Open Learning 14, 2: 52-58

2  Berge, Z. and Mrozowski, S. 2001 ‘Review of Research in Distance Education, 1990 to 1999’, The American Journal of Distance Education 15, 3: 5-19

3  Gibbs, G. 2002 ‘Editorial’ Open learning 17, 2: 101-103

4  Anderson, T. 2004 ‘Practice guided by research in providing effective student support services’ in J. Brindley, C. Walti and O. Zawacki-Richter (eds.), Learner support in open, distance and on-line learning environments (pp. 259-272). Oldenburg: Biblioteks und Informationssystem der Universität Oldenburg


8  Panda, S. 2000 ‘Mentoring, incentives and rewards in research as professional development’, keynote paper for the Conference on Research in Distance and Adult Learning in Asia (CRIDALA), Open University of Hong Kong, June 21-24, 2000. Hong Kong: Open University of Hong Kong


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Doing Institutional Research: The role of the partisan guerrilla

Alan Woodley

Institutional research can be defined as "systematic investigation designed to improve the efficiency and effectiveness of an institution". Under such a broad definition it is clear that "institutional research" (IR) is actually practised in a whole range of institutions, by staff in many positions, using a variety of methodologies, and addressing a huge array of issues. For the purposes of the present paper I am going to restrict myself to a consideration of IR as practised in Distance Teaching Universities (DTUs) by professional researchers as part of their duties. By drawing upon my personal experience of carrying out IR in such a context at the British Open University, I will attempt to identify where IR has had an impact and relate this to the roles and functions of the institutional researchers themselves. In short I am going to critically reflect upon the process of doing institutional research, rather than present results from it.

When one thinks of "research" in the same breath as "university", the tendency is to conjure up images of academics poring over books in libraries or carrying out experiments in laboratories. For them the aims of research are to push back the frontiers of knowledge, to develop theory, to improve their teaching. However, if one considers "research" in an industrial or commercial context the image shifts to one of research for product
development, organisation and methods research, market research, etc.

For Distance Teaching Universities there is an interesting duality because they are both universities and industries, and both models of research are present. For the professional institutional researcher the two models co-exist in the same occupational role and it is the anomalies and contradictions that this produces that forms the focus of this paper.

In short the thesis of the paper is as follows:

• Distance Education has been categorised as an industrial process. Most institutional research can be seen as contributing to this process.

• Notwithstanding this model, institutional research is not a purely technical matter and needs to be understood as a social process of knowledge construction.

• In particular, complexities arise because DTUs have other aims beyond profit-maximisation.

• Where institutional researchers are full academic members of the university this can and should profoundly affect their roles as researchers.

**Industrialised research for industrialised education**

Theorists such as Peters (1983) and Keegan (1990) have portrayed distance education as "industrialised education". In their support they cite factors that exist within production industries and within distance education such as the increased division of labour, mechanisation, large capital investment costs, and the need for a mass market. Others have argued that they are wrong to say that traditional forms of education...
have been unaffected by such processes (Sewart 1990) and that they fail to acknowledge the debates about the changing nature of industrialisation (Campion and Renner 1993). For the purposes of the present paper I want merely to take the position that distance education can be viewed as industrialised education and to examine how this can help our interpretation of institutional research.

To begin with I have taken a number of clearly recognised research areas out of their industrial context and given examples from my own university of corresponding institutional research.

**Market Research**

- Surveys of prospective students to ask them what subjects they would like the University to provide
- Studies of responses to advertising in various newspapers in order to maximise the effects of publicity campaigns

**Organisation and Methods/Work Study**

- Studies of the turn-round time for assignment marking and recording
- Reviews of course production methods

**Quality Control**

- Surveys of students to measure their reactions to the courses
- Analysis of computer and tutor-marked grade distributions

**Management Information Systems**
The numbers of students on courses, their performance and their flows through the system

Planning and modelling

Studies of cost-effectiveness

Research and development

Studies of the possibilities of new technologies such as satellites and computer-conferencing

The developmental testing of prototype courses

Elsewhere I have talked about three models of evaluation: "Market", "Liberal" and "Radical" (Woodley, 1991). From my own observations I believe that the great majority of institutional research as practised in distance education falls within the "Market" model, and can be categorised under one or more of the sub-headings above. Implicit within this model is the image of the institutional researcher as a technician or a neutral scientist supplying information for management decision-making.

I am not seeking to denigrate this role in IR. In fact I consider a close working relationship with institutional decision-makers to be absolutely vital for institutional researchers. They should be responsive to the needs of decision-makers and accountable to them. However, what I want to move away from is the notion borrowed from the industrial sector that research can produce a quick solution or a "technical fix" for management problems.

How does one judge the success or otherwise of research within the "Market" model? Ideally one should be able to point out how the results led to a change in the system that increased the efficiency or effectiveness of that system.
To take a simple example from my own institution, we were able to show through surveys that very few students were listening to our radio broadcasts and that almost all students had access to a cassette-player. This, together with financial information, led the University to conclude that it was cheaper to distribute audio materials on cassettes.

Unfortunately the great majority of IR does not produce such clear-cut "positive" results. This can be due to a number of reasons. Firstly, IR is just one input into institutional decision-making. Decisions are frequently made which run counter to research findings, due to factors such as internal or external political pressures or financial constraints. Secondly, good IR may feed into the general stock of management information rather than into a particular decision or change. Finally one has to acknowledge that it is often due to poor research.

What constitutes "good" institutional research within the "Market" model? In my experience there are certain basic standards that must be met:

• Detailed discussions with the client concerning the actual nature of the research question.

• The research question must be seen to address a priority issue

• There must be the possibility of some action as a result of the research

• Collaboration with the clients during the course of the research

• The production of the research results within an appropriate time period and in a style acceptable to the client
At a more fundamental level the quality of research will depend upon which research methods are employed and how well they are implemented. By its very nature, distance education, with its separation of the teacher and the learner, presents a whole set of problems for the social researcher. Added to this is the tremendous variation in distance education programmes themselves. Programmes vary in terms of level, formal versus informal, and available communications channels. In response to this, virtually the whole range of social science research methods have been used at one time or another to meet the informational needs of distance education management. When asked which methods should be used it is very difficult to give a simple answer. I will outline some possible replies:

- "Appropriate methods": One answer is to say that you pick the methods that are appropriate to the research problem. For example, if you want to know the drop-out rate on a given course you would clearly go for a "quantitative" study, probably based on course registration or attendance data. If you wanted to find out about the effect of a radio campaign about contraception on village women you might well decide that this should be done "qualitatively" by sensitive women interviewers in the peoples' own homes. However, even with these examples it is not a straight-forward matter. Administrative records might not accurately reflect drop-out rates. In our second example, one could also imagine a quantitative study based on sales of contraceptives or on the actual birth-rates.

- "Scientific methods": Most researchers would agree with this but there are divisions within social science as to how social reality can be measured and hence what can be called "scientific". Adherents of the quantitative, empirical school would always select objective surveys, tests and experiments, while those who felt that such methods did not tap into "what
"Methods demanded by the situation": There will always be factors in the researchers environment that influence the methods that are chosen. Such pragmatic considerations include external pressures, cost, available research skills and geography.

"Multiple methods": In recent times more and more researchers seem to have come to the conclusion that it is better to select a variety of research methods when approaching a problem, rather than any one single method. This is particularly the case with programme evaluation.

It is now generally acknowledged that it is insufficient to evaluate a programme on the basis of pre and post-tests of the knowledge held by students. This is especially so in the case of part-time and distance education where reality is often "messier", or more complex, in the sense that environmental factors, at home and at work, are likely to play a greater part in the learning process. While we still need to know what has been learned, we also need to find out the reactions of all the people concerned, we need to know about the process of how the programme actually ran, and we need to know about any positive or negative side-effects.

Multiple methods are needed because different facets of the problem are best addressed in different ways. Their use can also be justified using the concept of "triangulation", a term which is borrowed from land surveying. It means that you are more likely to pinpoint a phenomenon if you set about measuring it from several different points rather than just one.
So far we have considered IR as a neutral, rational and technical approach to improved management decision making. We have suggested that it is problematic in terms of the prioritisation of tasks, the elaboration of the research question and the selection of research methodologies, but, with the “Market” model of IR, these can be seen as technical problems to be resolved by rational debate. The institutional researcher is the technician. Once the task is clarified and the appropriate method selected, he or she can proceed.

However, in my case I am not merely a "technician" but a full academic member of the university. This means that I share in the responsibility for shaping and implementing the policy of the university, and that I have certain rights and duties as a member of the academic profession. I realise that not all institutional researchers enjoy such status but in my experience it is through such a status that the impact of IR can be maximised. Therefore, I want to examine the implications of the professional role of the institutional researcher in the remainder of this paper.

As a full member of the university which I am researching, it is most unlikely that I am going to be operating as a "neutral" scientist. Does this matter? In 1961 Gouldner had attacked what he took to be the dominant professional ideology of sociologists: that favouring the value-free doctrine of social science. In 1968 he returned to the fray because he feared "that the myth of a value-free social science is about to be supplanted by still another myth, and that the once glib acceptance of the value-free doctrine is about to be superseded by a new but no less glib rejection of it" (Gouldner, 1968, p 103). He took to task Becker and others in the Chicago School who sided with the "underdogs" in their studies of deviant behaviour (see for example Becker, 1963). They did so on the grounds that it is impossible for a social scientist to do research uncontaminated by personal and political sympathies. Work must be written either from the stand-point of...
subordinates or superiors because one cannot do equal justice to both. Gouldner, on the other hand, while recognising the inevitability of bias and partisanship, notes "the fact remains that two researchers may have the same bias but, nonetheless, may not be equally objective" (Gouldner, 1968, p 111). He goes on to outline three possible conceptions of sociological objectivity. "Normative objectification" is the objectivity of the court judge which "requires his explication of the moral value in terms of which his judgement has been rendered" (Gouldner, 1968, p 113). "Personal authenticity" is a form of objectivity that involves "the capacity to acknowledge 'hostile information' - information that is discrepant with our purposes, hopes, wishes or values" (Gouldner, 1968, p 114). A third component of objectivity is "transpersonal replicability" which means that sociologists have described their procedures with such explicitness that others employing them on the same problem would come to the same conclusion.

Gouldner, then, did not see partisanship as incompatible with objectivity. "The physician, after all, is not necessarily less objective because he has made a partisan commitment to his patient and against the germ." (Gouldner, 1968, p 113) However, Gouldner did not address the question of the researcher's position in relation to the different factions. For example, how would it have affected Becker's research if he had been doing the research for the police force, or even if he was part of that police force? As an institutional researcher for the Open University, and as a full academic member of that University, there are three sets of constraints acting on me: the need to be a professional, objective researcher; the need to act responsibly toward, and to seek improvements in the institution of which I am a member; the need to act in accordance with my own values.
Professionalism and objectivity should permeate all of the institutional researcher's work, but the notion of partisanship will vary according to the task at hand. In the next section I want to consider the case where institutional researchers are called upon to act in a partisan way towards their own institution by defending it against outsiders.

Institutional research as self-defence

While Distance Teaching Universities can be viewed as industries for some purposes, there are also crucial differences. Whereas businesses tend to have profit-maximisation as their predominant if not sole aim, universities tend to have several. These include goals related to student numbers, improved teaching methods, research output and benefits to the local community. Many DTUs are also committed to egalitarian aims concerning which sectors of the population they are trying to reach with their courses. Consequently, when governments come to decide upon the success or otherwise of DTUs, they are liable to examine a DTU's performance across all of these aims. It is at such times that IR can be used to defend a university.

In 1990 the Secretary of State for Education and Science established a review of the UK Open University. The government were seeking to expand the total provision of higher education for part-time students and wished to see whether the Open University was the appropriate means for such an expansion. The Review sought the answers to thirteen questions concerning the contribution made by the Open University and possible ways of funding expansion. I was directly involved in answering the four following questions:

"What is the contribution of the Open University in opening up access to Higher Education to students"
without traditional qualifications, and those from under-represented groups?"

"What is the contribution of the Open University in increasing the supply of graduates in areas of national shortage?"

"How does the performance of Open University graduates compare with those from other universities and polytechnics in the labour market?"

"How does the University compare with other institutions of higher education in relation to part-timers’ progression and drop-out rates?"

This is not the place to attempt to detail the exact information that the University was able to assemble over a very short period of time in order to answer these questions. Instead I would like to draw out the general lessons for successful IR in such a situation:

_ We did not have to start from scratch. Because our information systems were in place, we were able to assemble very quickly the required data on topics such as progress rates and the number of graduates with varying proportion of credits in Maths, Science, and Technology in their degree profiles.

_ From the point of view of "under-represented groups", we were able to present information on gender, age, occupation, educational qualifications, ethnic origin, disability, prisons, the armed forces, and geographic location.

_ Some of the questions required survey data. In a number of cases we were able to draw upon surveys that we had already carried out for our own purposes. (For example, we were able to say what proportion of our students had transferred into conventional higher education.) For the performance
of graduates in the labour market we were required to carry out a new survey, but we were able to do this quickly and efficiently, because we had done such surveys in the past, and we had the research infrastructure needed for such a task.

Probably due to our track record of carrying out and publishing detailed IR which was often critical of the University’s achievements, we were seen as being capable of evaluating ourselves without the necessity of bringing in some third party to carry out the evaluation. This placed us in a much stronger position because we could directly negotiate the appropriate questions to be asked, the ways in which they should be answered, and the interpretation of the actual data.

Opinion within the University suggested that we came out of the Review rather well. Clearly an institution with a big IR input is in a stronger position to respond to examinations by outside funding bodies. However, it is my contention that a lot of this strength is gained when IR is carried out by semi-autonomous academic researchers because (a) they demonstrate their independence through external publication, and (b) they carry out speculative research, the relevance of which may not be clear to the institution at the time it is carried out.

**Institutional research as self-criticism**

When institutional researchers are members of a university’s academic community, they have certain freedoms as well as duties. These freedoms, if not abused, can lead to creative work that is within the interests of the university. However, whereas work done as self-defence leads to direct praise from one’s institution, others types of research can seem irrelevant at best and unpalatable at worst.
One freedom is the ability to follow one's own interests to a certain extent, rather than follow the dictates of short-term management demands. As mentioned in the previous section this can lead to speculative research that nobody has commissioned, but which eventually emerges as vital information. It may produce disturbing results, as when it was revealed that graduation rates at my own University were decreasing and that this was only partly due to the decline in the proportion of teachers among our students. It may lead one into other disciplines, where new ideas, concepts, theories, and methods may have relevance to distance education.

I want to talk about one particular freedom (although I would argue that it is also a duty), and that is the freedom of the institutional researcher to help shape an institution's goals, to remind the institution of those goals, to monitor the extent to which these are achieved, and to publish the results of such research. As an example I will draw upon my own experience in the field of equal opportunities and with particular reference to ethnic monitoring.

In 1987 the Open University Senate, of which I am a full-voting member, passed a motion calling for the development of policies to "increase the recruitment of and provision of services for students from racially, socially and economically disadvantaged groups", and the routine collection and maintenance of data on "major relevant parameters including ethnic origin (as defined by the student)".

The task of ethnic monitoring was given to the University's Student Progress Committee and so, as a member of this committee, I was heavily involved in the research design. Despite the injunction from Senate to collect the information, there was continuing debate in the Committee as to when the question should be asked (eg at application or after registration), whether the question should have an option saying "I prefer not to answer this question", and indeed whether the question
should be asked at all. There were also fierce arguments about the details of the actual question. On the face of it, the request for ethnic monitoring was straightforward because after many years of debate and controversy the UK had just come up with a tested and agreed question that was to be used on the national 1991 Census form. If this question was used it would be relatively uncontroversial and would eventually have comparable national statistics. In the event we actually came up with a very different question. The details of this whole process are recorded elsewhere (Woodley, Taylor and Butcher, 1993). The point I am trying to make is that I, as an institutional researcher, was involved in the shaping of the policy and in its implementation. My contribution was clearly not just that of a technical adviser.

Early results from the ethnic monitoring exercise were encouraging from the point of view of representation. The proportion of black and ethnic minority students appeared to match the proportion in the general adult population. However, the progress that they made as students was less encouraging. As an "objective" researcher I attempted to control for the effects of factors such as previous educational qualifications, course choice and age, but it still seems to be the case that these students are less likely to gain a course credit at the end of their first year. From my own value position, I want to alert the University to the situation and to produce improvements within the system and, as an academic, I expect and am expected to publish interesting findings. However, as an employee of the University I have to consider how, in what form, and to whom this information should be released. The University is anxious not to get bad publicity over what is a very sensitive issue, but demand for the information is great both from outside the University and from within by regional staff and by academics writing a course on Race and education. Therefore, the process whereby the research data becomes public knowledge is one of negotiation.
In the previous section I stressed the partisan role of the institutional researcher in defending the institution from outside attack. In this section I have discussed how one can also provoke change within one's own institution through a critical approach based on a partisan attitude towards the fundamental aims of that institution.

Conclusions

While a great deal of institutional research has been carried out in the field of Distance Education, it is my impression that a great proportion of it has had little visible impact. On optimistic days I would argue that this is not important - a programme of institutional research indicates a reflective institution that is committed to self-improvement, and the complexities of management decision-making mean that the effects of such research are hard to discern. On more pessimistic days it seems that institutional research is a useful means for managers to delay making any decisions, or a treasure trove of conflicting data that can be used selectively to justify the decision they want to take for other reasons.

When sitting down to write this paper, I started from effects rather than causes. I considered all of the institutional research that I had been involved in, thought about those projects where in my opinion there had been most impact, and then attempted to delineate the critical features of the "success stories". In doing so I came back to the short presentation that I made to our then new Vice-Chancellor when I was asked to summarise my work in ten minutes. I based my talk on three words: "Respond", "Alert" and "Provoke". To me these summarise the three key roles of the effective, professional and committed institutional researcher, and in each case my power to perform these roles is increased by my academic status.
In IR you have to "respond" to the needs of policy-makers. To achieve impact you need to be "where the action is" and you need to be accountable. However, this does not mean that you have to agree. Your independence as a researcher can give you the freedom to dispute whether the policy-makers are asking the right questions or interpreting the data correctly.

The needs of policy-makers tend to be short-term and affected by pressing circumstances. It should be the duty of the institutional researcher to be aware of wider issues, research findings elsewhere, theoretical developments, trends in institutional statistics, etc, and to "alert" policy-makers to their implications.

It is also the duty of a good institutional researcher to be a trouble-maker. He or she must be able to point out the things that are going wrong and to "provoke" action within the institution to put things right.

To perform these three tasks well the institutional researcher has to become what I term a "partisan guerrilla". However, around the world DTUs are closing or shrinking their IR units. Research is being done more and more by non-academic staff on short-term contracts, or commissioned from outside agencies. The partisan guerrilla may well be one of the endangered species.

Alan Woodley is Senior Research Fellow in the Student Research Centre of the Institute of Educational Technology, The Open University, Milton Keynes, United Kingdom, MK7 6AA. His e-mail is: a.woodley@open.ac.uk

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Review of Research in Distance Education, 1990–99

Zane L. Berge and Susan Mrozowski

Abstract

This review examines the research literature in distance education over a ten-year period from 1990 to 1999. Using four prominent, peer-reviewed, English-language distance education journals and the dissertation abstracts that were related to the field of distance education, the authors found 1,419 total articles and abstracts. Only those articles reporting a research methodology (n = 890) were included in this study. A categorization system based on Sherry (1996) was used to categorize the content. The patterns across journals and dissertation abstracts indicated a predominance of pedagogical issues being researched. Three-fourths of the articles and dissertations used a descriptive methodology. Implications for reviews such as this include that, while they cannot correct sloppy or short-sighted research, they can begin to address gaps in past distance education research. They can dramatically show the need for a research agenda and future vision in the field of distance education.

Introduction

The research conducted to date in distance education has received harsh and consistent criticism. Criticism often focuses on (1) noncontrol for extraneous variables, (2) lack of use of randomly selected subjects, (3) lack of validity and reliability of the instruments used to measure student outcomes, and (4) inadequate control for the feelings and attitudes of the students and faculty (i.e., “reactive effects”) (Anglin and Morrison 2000; Diaz 2000; Perraton 2000; Phipps and Merisotis 1999; Reeves 2000; Saba 2000).

We conducted a review of previous distance education research reviews. The materials ranged from a comprehensive review of distance learning literature (Moore and Thompson 1997) to a focus on specific topics such as faculty issues (Dillon and Walsh 1992), distance learning studies in the United States Military (Barry and Runyan 1995), learner issues with hypermedia (Dillon and Gabbard 1998), general trends in distance learning (Guri-Rozenblit 1991), examination of research trends in The American Journal of Distance Education (Koble and Bunker 1997), effectiveness of delivery methods (Zurkin and Sumler 1995), and primary research issues in distance education (Schlosser and Anderson 1994; Sherry 1996). Each of these reviews had their strengths, yet none was comprehensive or compelling in the sense of widespread use by researchers in the field. For instance, a recent factor analysis of barriers in the field of distance education (Muilenburg and Berge 2001) was considered because of its comprehensiveness. However, when we began to categorize the articles and dissertation for this study, nearly all of the items fell into only two or three of the ten factor categories. Thus, the comprehensiveness that caused us to try this categorization system as a standard ended up not being useful. Eventually we judged the Sherry (1996) review to be the most useful for our purposes here.
We examined the content areas of research (i.e., redefining roles of key participants, technology selection and adoption, design issues, strategies to increase interactivity and active learning, learner characteristics, learner support, operational issues, policy and management issues, equity and accessibility, and cost/benefit tradeoffs), the type of methodology used for the research (i.e., descriptive, case study, correlational, and experimental), and the trends, if any, in the areas of research found in selected sources of distance education research from 1990 to 1999. We did not attempt to evaluate the "quality" of this research, instead leaving that up to the peer-review process of the selected journals publications. Neither do we prescribe what research should be done in the future. Implications to the field are suggested, however. Data collection began in summer 1999 and ended late in January 2001.

Methodology

When characterizing the purposes of research, one is to solve problems in the field. Given this, and since using a categorization system of issues in distance education that was judged to be too comprehensive became problematical, we chose to use a categorization system by Sherry (1996) for the purposes of this review.

Sherry Categories for Distance Education Research

Sherry’s (1996) approach focused on four main underlying research issues in the field: learner characteristics and needs, media influence on the instructional process, access issues, and the changing roles of teacher, site facilitator, and student. From these underlying research issues, Sherry constructed ten research issues. Sherry’s classification system accommodated the nuances in distance education research, especially in the area of pedagogy. A description of the ten research issues follows.

• Redefining roles of key participants: Key participants include teachers, students, and site facilitators. The focus is on training, such as providing teachers with guided practice and training programs to familiarize them with the design and delivery process of distance education.

• Technology selection and adoption: Media-based challenges concern time and accessibility of the equipment, dependability, ownership and authority, control of design issues, and integration in the course.

• Design issues: Design issues refer to the traditional stages of instructional systems design—that is, design, development, evaluation, and revision. Additional issues include content requirement, technical constraints, interactivity, and feedback.

• Strategies to increase interactivity and active learning: Closely related to design issues (above) is course design that addresses students’ modes of learning (e.g., cooperative, competitive, individualized; effective use of visual imagery; and the use of guided practice).

• Learner characteristics: These issues, related to strategies to increase interactivity and active learning (above), focus on the use of localized instructional theory to accommodate various learner styles.

• Learner support: Important features include methods of teacher mediation (which increase student completion rates); and teacher-to-teacher support—such as peer mentoring and online bulletin boards—for teachers to share experiences and ideas.

• Operational issues: These issues are planning, administration, management, and economics. Specifically, these issues include the management of the teacher-facilitator-student triad, the training of teachers and staff, implementation and adoption of new technology within the institution, and policy concerns such as cost, scheduling, and facilities.
• **Policy and management issues:** The focus here is on administrative issues (e.g., tenure, budget, role of the teacher, teacher certification, accreditation, and administrative roles, including the principal, technicians, and support staff).

• **Equity and accessibility:** Scant information is provided for this category. It is briefly described as the equity of access to interactive delivery systems.

• **Cost/benefit trade-offs:** Costs and benefits vary based on specific school characteristics because the implementation of distance education is resource-intensive.

**Selection of Articles**

We used two criteria to select the articles for review. Each article needed to: (1) be published between 1990 and 1999 in one of four distance learning journal selected for this review, and (2) include a description of the methodology used in conducting the research reported in the article. The four journals that we chose to represent the research in the distance education field were *The American Journal of Distance Education* (United States), *Distance Education* (Australia), *The Journal of Distance Education* (Canada), and *Open Learning* (United Kingdom). These four prominent journals are the only peer-reviewed English-language journals published continually from 1990 to 1999 and have been readily accessible worldwide. In addition, we searched Dissertation Abstracts published during the ten-year period, using the key words “distance education” and “distance learning” (duplicates were removed). We included these dissertations to acknowledge that acceptance criteria for journals versus dissertations may be quite different. Table 1 lists the volumes and issues for each of the four journals and identifies the abstracts searched.
Table 1. Journals and Dissertation Abstracts Used

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<th>Journal</th>
<th>Year</th>
<th>Volume / Issue</th>
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<td>The American Journal of Distance Education</td>
<td>1990–99</td>
<td>Issues 1, 2, 3 each year</td>
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<td>(USA)</td>
<td>(Vols. 4-13)</td>
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<td>Distance Education</td>
<td>1990–99</td>
<td>Issues 1, 2 each year</td>
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<td>(Australia)</td>
<td>(Vols. 11-20)</td>
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<td>Journal of Distance Education</td>
<td>1990–91, 1993–96, 1998–99</td>
<td>Issues 1, 2 each year</td>
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<td>(Canada)</td>
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Types of Research Methodologies

Only articles and dissertation abstracts that contained a section describing the research methodology used in reporting the study were considered for this literature review of distance education research. While there are various frameworks for categorizing distance education research (e.g., Morrison and Adcock, 1999; Threlkeld and Brzoska, 1994), we chose to use the four categories of Phipps and Merisotis (1999)—descriptive research, case study, correlational research, and experimental research—for convenience in this analysis and report. Descriptive research is defined as the collection of data through observation, questionnaires, attitude scales, and interviews. A case study is used here to mean a detailed investigation of one “unit” or multiple units. Correlational research is described as the collection of data in order to determine whether a relationship exists between two or more quantifiable variables. Experimental research tests hypotheses concerning cause-and-effect relationships, with one group designated as the control group and one group as the experimental group (Phipps and Merisotis 1999, 12).

In some cases, an article described the use of more than one research methodology. Only the primary method was recorded. For example, if a study’s focus was on experimental research but some evaluation data was also collected through surveys or interviews, the main research tool was selected; in this case, the study would be classified as experimental. Therefore, each research article was classified under only one “Sherry category” and only one Phipps and Merisotis (1999) “research methodology” category.

Results and Discussion

Abstracts, methods, conclusions, and the body of each article were read (abstracts only in the case of dissertations), by one coauthor of this report until classification was
determined. As the articles and dissertation abstracts were reviewed, a database was created and maintained to manage the collected information. The database fields included the journal’s name, the volume and issue, the publication date, and the article’s page numbers; the title of the article; the name(s) of the author(s); Sherry’s categories (1–10); research methodologies (1–4); and a brief description of the research problem (see Table 2 for a sample, descriptions and page numbers from the database are excluded here). After the database was completed, the information was checked by the other coauthor for classification accuracy and consistency. The coauthors then collaborated to discuss and decide upon discrepancies.
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Article title</th>
<th>Journal</th>
<th>Volume</th>
<th>Issue</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kumar, A.</td>
<td>Learner characteristics and success in Indian distance education.</td>
<td>(Nov., 1999, Vol. 14 #3)</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Thompson, G.</td>
<td>How can correspondence education improve student retention?</td>
<td>(1990, Vol. V, #1)</td>
<td>41</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Sweet, R.</td>
<td>Canadian proprietary correspondence schools: Some issues of access and technology</td>
<td>(Spring, 1991, Vol. VI, #1)</td>
<td>91</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Harriman, J.K.</td>
<td>Relationship between self-directed learning readiness, completion and achievement</td>
<td>(1990)</td>
<td>53</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Potter, D.</td>
<td>Supporting services for distance learners in the Canadian distance education sector</td>
<td>(1993)</td>
<td>61</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Holt, D.M. and Thompson, D.J.</td>
<td>Responding to the technological imperative: The experience of an open and distance education institution</td>
<td>(Vol. 16, #1, 1995)</td>
<td>82</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Stanley, P. and Wagemans, L.</td>
<td>Assessment of prior knowledge profiles: A support for independent learning?</td>
<td>(Vol. 16, #1, 1995)</td>
<td>54</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Potter, J.D.</td>
<td>Support services for distance learners in three Canadian dual-mode universities: A student perspective</td>
<td>(1997)</td>
<td>61</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Harriman, J.K.</td>
<td>Relationship between self-directed learning readiness, completion and achievement</td>
<td>(1990)</td>
<td>53</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Potter, D.</td>
<td>Supporting services for distance learners in the Canadian distance education sector</td>
<td>(1993)</td>
<td>61</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
Number of research articles
Table 3 lists the total number of articles and dissertations of the five selected publications from 1990 to 1999, and the number and percentage of these that were research articles. A total of 1,419 articles and distance education dissertations were published in the ten-year period. Of these, 890 were categorized as research articles. Overall, 62.7% of the articles were research, a value heavily influenced by the high percentage (93.4%) of dissertations in distance education that were, as we expected, research oriented. Three of the four journals selected contained nearly half (i.e., 40–50%) research articles during the target time period: The American Journal of Distance Education (41.5%), Distance Education (43.8%), and The Journal of Distance Education (49.5%). Only 17% of the articles in Open Learning involved research as we defined it for this study.

Table 3. Number of Total Articles and Number of Research Articles for the Four Selected Journals and Dissertation Abstracts (1990-1999)

<table>
<thead>
<tr>
<th>1990-1999</th>
<th>Total Articles</th>
<th>Total Research Only</th>
<th>Percentage Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>DA</td>
<td>692</td>
<td>646</td>
<td>93.4%</td>
</tr>
<tr>
<td>AJDE (US)</td>
<td>142</td>
<td>59</td>
<td>41.5%</td>
</tr>
<tr>
<td>DE (Australia)</td>
<td>185</td>
<td>81</td>
<td>43.8%</td>
</tr>
<tr>
<td>JDE (Canada)</td>
<td>111</td>
<td>55</td>
<td>49.5%</td>
</tr>
<tr>
<td>OL (UK)</td>
<td>289</td>
<td>49</td>
<td>17.0%</td>
</tr>
<tr>
<td>Totals</td>
<td>1419</td>
<td>890</td>
<td></td>
</tr>
</tbody>
</table>
Table 4. Number of Total Articles, Number Research Articles, and Percentage of Research Articles for the Four Selected Journals and Dissertation Abstracts (1990-1999)

<table>
<thead>
<tr>
<th>YEARS</th>
<th>PUBLICATIONS</th>
<th>DA (US)</th>
<th>AJDE (AU)</th>
<th>DE (CA)</th>
<th>JDE (UK)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Articles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td></td>
<td>42</td>
<td>14</td>
<td>18</td>
<td>8</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Research Articles</td>
<td>41</td>
<td>5</td>
<td>5</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>1991</td>
<td>All Articles</td>
<td>37</td>
<td>17</td>
<td>18</td>
<td>9</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Research Articles</td>
<td>35</td>
<td>10</td>
<td>6</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>1992</td>
<td>All Articles</td>
<td>35</td>
<td>15</td>
<td>19</td>
<td>20</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Research Articles</td>
<td>31</td>
<td>3</td>
<td>9</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>1993</td>
<td>All Articles</td>
<td>43</td>
<td>15</td>
<td>21</td>
<td>13</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Research Articles</td>
<td>42</td>
<td>9</td>
<td>6</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>1994</td>
<td>All Articles</td>
<td>61</td>
<td>12</td>
<td>18</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Research Articles</td>
<td>57</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>1995</td>
<td>All Articles</td>
<td>70</td>
<td>11</td>
<td>16</td>
<td>10</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Research Articles</td>
<td>68</td>
<td>3</td>
<td>7</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>1996</td>
<td>All Articles</td>
<td>70</td>
<td>21</td>
<td>20</td>
<td>11</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Research Articles</td>
<td>66</td>
<td>6</td>
<td>7</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>1997</td>
<td>All Articles</td>
<td>104</td>
<td>11</td>
<td>20</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Research Articles</td>
<td>98</td>
<td>6</td>
<td>12</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>1998</td>
<td>All Articles</td>
<td>122</td>
<td>14</td>
<td>18</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Research Articles</td>
<td>109</td>
<td>5</td>
<td>9</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>1999</td>
<td>All Articles</td>
<td>108</td>
<td>12</td>
<td>17</td>
<td>10</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Research Articles</td>
<td>99</td>
<td>7</td>
<td>12</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>TOTAL</td>
<td>All Articles</td>
<td>692</td>
<td>142</td>
<td>185</td>
<td>111</td>
<td>289</td>
</tr>
<tr>
<td></td>
<td>Research Articles</td>
<td>646</td>
<td>59</td>
<td>81</td>
<td>55</td>
<td>49</td>
</tr>
</tbody>
</table>

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Commonwealth of Learning
To explore any trends in these numbers throughout the decade, we further broke down the percentage of research articles by year and by publication (Table 4). The most obvious trend is that, in the middle years of the decade, there was a dip in the number of research articles in the four journals relative to the total number of articles.

Research Methodology

The types of research methodologies used in all 890 research articles are provided in Table 5. Three-fourths of the articles and dissertation abstracts (74.83%) involved descriptive research, while only 6% used an experimental approach to research problems. Table 6 lists the research methodologies used to report the articles in this study, but with the dissertation abstracts removed. It is a bit surprising that there is not much difference between the percentages in Table 5 and those in Table 6. We suspected dissertations would use more correlational and experimental research than the research reported in journals. Table 7, which shows the pattern research methodologies used in the articles by year, shows quite a consistent pattern throughout the decade.

### Table 5. Research Methodology Used in Distance Education Research for the Four Journals and Dissertation Research, 1990-1999

<table>
<thead>
<tr>
<th>Research Methodology</th>
<th>Number of Research Articles</th>
<th>Percentage of Research Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive Research</td>
<td>666</td>
<td>74.83%</td>
</tr>
<tr>
<td>Case Study</td>
<td>112</td>
<td>12.58%</td>
</tr>
<tr>
<td>Correlational Research</td>
<td>59</td>
<td>6.63%</td>
</tr>
<tr>
<td>Experimental Research</td>
<td>53</td>
<td>5.96%</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>890</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

### Table 6. Research Methodology Used in Distance Education Research for the Four Journals Only (excludes Dissertation Abstracts), 1990-1999

<table>
<thead>
<tr>
<th>Research Methodology</th>
<th>Number of Research Articles in Journals Only</th>
<th>Percentage of Research Articles in Journals Only</th>
</tr>
</thead>
</table>
Research Trends in Content

Schlosser and Anderson (1994) pointed out in their review of distance education research that each of the eight areas of research they used (Holmberg 1987) was represented in the literature, albeit not equally.

Because the field . . . is so practical, research in distance education has been dominated by attempts to answer questions of immediate, practical significance. Further, a tendency of the field to be supportive of a liberal view of education and free access to the benefits of education has led its researchers to emphasize questions dealing with the student. Therefore, two of Holmberg’s categories of distance education research, distance students, their milieu, conditions and study motivations, as well as systems (media comparison studies), dominate the literature. On the other hand, because of the relative youth of the field, Holmberg’s final category, history of distance education, is the subject of few studies. (16)

An analysis of the research literature indicated that certain categories within Sherry’s categorization system were more commonly discussed, particularly in the area of pedagogy, as opposed to institutional or policy issues. Figure 1 identifies the patterns within the research literature in this study. The categories associated with design issues, interactivity and active learning, and learner characteristics dominated the types of questions addressed in the research. Categories such as equity, accessibility, and cost/benefit trade-offs, however, were seldom discussed in the research literature during this decade.

Figure 1. Content Themes in Distance Education Research Literature 1990-1999
Key to Sherry’s Categories
1. Redefining roles of key participants
2. Technology selection and adoption
3. Design issues
4. Strategies to increase interactivity and active learning
5. Learner characteristics
6. Learner support
7. Operational issues
8. Policy and management issues
9. Equity and accessibility
10. Cost/benefit tradeoffs
Table 7. Research Methodologies Used by Year (1990-1999)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive</td>
<td>44</td>
<td>38</td>
<td>38</td>
<td>54</td>
<td>55</td>
<td>63</td>
<td>78</td>
<td>96</td>
<td>99</td>
<td>101</td>
<td>666</td>
</tr>
<tr>
<td>Case Study</td>
<td>8</td>
<td>10</td>
<td>9</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>7</td>
<td>19</td>
<td>25</td>
<td>16</td>
<td>112</td>
</tr>
<tr>
<td>Correlational</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>8</td>
<td>9</td>
<td>9</td>
<td>59</td>
</tr>
<tr>
<td>Experimental</td>
<td>5</td>
<td>7</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>53</td>
<td>890</td>
</tr>
<tr>
<td>Totals</td>
<td>65</td>
<td>60</td>
<td>52</td>
<td>62</td>
<td>71</td>
<td>84</td>
<td>95</td>
<td>129</td>
<td>140</td>
<td>132</td>
<td>890</td>
</tr>
</tbody>
</table>

The dearth of research in the area of policy and management issues reflects the field’s focus on issues within the classroom and between the distance learner and the instructor. Policy areas related to planning, administration, accreditation, and costs, to name a few, affect the success or failure of a distance learning program. These areas appear to be addressed in research later in the decade (See Table 8), but they still lagged far behind those concerning pedagogy. Of course, some of these areas are naturally much broader in scope than others and those would normally receive more attention from researchers as well as practitioners. Some areas in this categorization system, more so than others, may also lend themselves to the type of research many researchers are interested in conducting.

Limitations

Sherry’s categorization system used for classifying the research articles was fairly comprehensive and adaptable. This approach, however, has the drawback of being based on subjectivity. Although the database was checked independently, it is conceivable that other reviewers might place an article in a different category. This situation is particularly true for several of Sherry’s categories—that is, design issues, strategies to increase interactivity and active learning, and learner characteristics.

Another limitation was the categorization of research methodologies. Most articles clearly indicated the main type of methodology used, but some articles were less direct or not easily classified. Therefore, it is possible that some articles might have been placed in a category that is inappropriate. However, the number of those types of articles was insignificant and had little effect on the overall classification process.

Separately, the decision to use the four main distance education journals and dissertation abstracts might be subject to dispute. The goal was to use peer-reviewed journals that would most accurately reflect the research trends in distance education. There are many peer-reviewed journals in related fields—such as library science and computer science—that might contribute to this discussion, but they were not included in this review.

Finally, the fact that only 93.4% of dissertations abstracts record the methodology used may underrepresent the actual percentage of dissertations using same. It is simply cost prohibitive to examine the full text of the dissertations for the 6.6% in which the abstract alone did not mention any methodology.

Implications to the Field
The purpose of this literature review was to provide a summary of dissertation and published research in distance education in the 1990s. Data on research articles was obtained from four main distance education journals and dissertation abstracts that were related to the field. Analysis of the data indicated that pedagogical themes, such as design issues, learner characteristics, and strategies for active learning and increased interactivity dominate the research and appear to be increasing in recent years. Research in the areas of equity and accessibility, operational issues, and policy-and-management issues is less common. Three-fourths of the articles used descriptive research as their methodology. Experimental or correlational research was seldom utilized (<13% combined).

This report, along with earlier reviews of distance education research (e.g., Phipps and Merisotis 1999), has shown gaps in what is being researched:

- The research has tended to emphasize student outcomes for individual courses rather than for a total academic program.
- The research does not adequately explain why the dropout rates of distance learners are higher.
- The research focuses mostly on the impact of individual technologies rather than on the interaction of multiple technologies.
- The research does not adequately address the effectiveness of digital libraries.

A widespread agreement on a research agenda for distance education could help point the way to removing these and other gaps that have historically been found in the early decades of research in distance education.

The methodology used in the current study is one way of analyzing and describing selected significant research that took place in the decade of the 1990s with regard to distance education. Is this the research that should have been conducted and published? Is more of the same research the best we can do in the future? The implications for the field of distance education cannot be weighted unless there is a research agenda—a vision for the future from which to judge the present and the past.

References


Editorial

The American Journal of Distance Education has published an article which examines the research literature on distance education over a 10-year period and the review spans almost 800 journal articles (Berge & Mrozowski, 2001). It includes articles in Open Learning, with quantitative analysis of the types of articles and topics addressed. The review also summarises other qualitative reviews of the field which have been critical of the quality of research, and it provides a valuable perspective on the kind of research being undertaken in the field. Potential authors of Open Learning articles may find this review helpful in considering what kinds of research are likely to be most valuable.

Berge and Mrozowski categorise the type of research methodology used as descriptive, case study, correlational or experimental. Only one in six of Open Learning articles were categorised as ‘research’ at all, compared with almost half of articles in the other journals in the field. Over three quarters of all ‘research’ articles were categorised as ‘descriptive’. There is both a clear pattern of the type of articles published in the field of distance education and a clear difference between Open Learning and other journals. Before throwing myself off the nearest cliff, I read on and was interested to discover that there were blind spots amongst these ‘research’ articles. For example, they tended to focus on the use of individual technologies within a course rather than on the integration and interaction of technologies within courses and with the totality of students’ experience. They also tended to focus on students’ experience of, and performance in, individual course units rather than whole programmes. This seems an almost inevitable consequence of adopting a reductionist quantitative research paradigm, in which studies measure what is easy to measure, and which have rather more difficulty coming to terms with the big, messy, picture. ‘Research’ articles were also criticised for failing to explain dropout of distance learners. But quantitative experiments can rarely ‘explain’ anything—that requires theory and conceptual frameworks and insight.

I suspect that Open Learning publishes more descriptive case study material based on single courses, or innovations, than is ideal, given the difficulties of generalising from such single instances. But I also suspect that the ‘think pieces’ that Open Learning regularly publishes contribute more to understanding distance education than any number of ‘research’ studies reporting sophisticated statistical analyses of hits on web sites or counts of e-mail messages. It is my perception that the overwhelming dominance of quantitative reductionist research into conventional higher education in the US (for example, the many thousands of articles about the reliability of atheoretical student feedback questionnaires) is not reflected in its impact. In contrast the much smaller number of conceptual frameworks derived from insightful ‘descriptive’ (e.g. ethnographic or phenomenological) studies of the
integrated nature of students’ experience (such as Snyder’s ‘hidden curriculum’ or Perry’s ‘stages of intellectual and ethical development’) have had a lasting and deep impact. By all means let’s have more, and more convincing, evidence of effectiveness, but let’s also make sure these data are set within powerful explanatory frameworks rather than assuming that data are inherently valuable simply because they are collected within a particular methodological paradigm.

Probably all five articles in this issue of Open Learning would be categorised by Berge and Mrozoski as ‘not research’, and I’m proud to publish them.

In many distance learning systems there are two main components: course production, concerned with design and content, and course delivery, concerned with process and student support. In some systems, such as at the Open University in the UK, many aspects of student support are managed quite separately from, and after, course production. Mary Thorpe’s article shows how, in some online and interactive forms of learning and teaching, this distinction breaks down. In one course she describes, in particular, students collate their own content online and generate new content through online interaction. The tutor’s role involves both support for students’ generation of content and support for facilitation of process. In this context interaction is not simply a helpful add-on but is an essential component of the course, with ‘course materials’ playing a much more modest role. Thorpe explores students’ experience of such courses and considers the implications for this blurring of boundaries between content and process for institutional structures. It is hard to imagine this reconceptualisation of the term ‘learner support’ being derived from a controlled experiment measuring the volume of students’ interaction within Thorpe’s course, compared with a control group.

The article by Namin Shin similarly challenges and extends our understanding of a cornerstone of distance education: the notion of ‘distance’. Here the focus is on how students perceive the presence of others within their (distant) learning environment. Shin draws on theoretical models from media and communication studies to develop the concept of ‘transactional presence’ as: ‘the degree to which a distant student perceives the availability of, and connectedness with, other parties involved in a given distance education setting’. Students’ level of use of, response to and satisfaction with the support, tuition and student interaction elements of a course are likely to be mediated by the degree of ‘transactional presence’. This is the kind of concept that can frame quantitative studies of students’ use of opportunities for interaction, or help to interpret findings about the impact of providing such opportunities on student performance.

Jill Cadorath and colleagues describe a staff development process, for new designers of distance learning English language courses, which involved first-hand experience of learning at a distance in order to understand key issues of materials design. This process of learning how to be a distance teacher by reflecting on being a distance learner was also used by Barbara Roberts (Open Learning, Vol. 17, No. 1) to explore the role of reflection in learning at a distance. Cadorath’s article describes the operation of a staff development programme which succeeded in developing teachers’ materials writing skills at the expense of their attention to the design of student support systems.
The conventional separation between course production and student support, which is the starting point for Thorpe, and also a distinction made by Cadorath, is picked up by Jo Tait in her article about developmental support for distance learning tutors. As a consequence of this separation, institutional structures can mean that the insights of the tutors, gained from reflection on their tutoring and their students’ learning, can be largely lost to course designers who are distant from tutors’ and students’ experience. Tait draws on theories of activity and practice in social and organisational settings to argue for a more integrated role for tutors. Staff development for such tutors, she believes, should involve social and organisational integration rather than only training to achieve competence to perform an isolated role. Resolution of issues such as this involves political and organisational matters, involving status and power, not just empirical evidence of effectiveness of competing models of staff development.

Finally, Wei-Yuan Zhang and Namin Shin’s survey comparison of distance learning models, in three countries, highlights the social, cultural and economic variables that frame the differences between these models. For example, students at the Chinese Radio and Television University System (RTVUS) are funded very largely by the government and by their employers, whereas students at the Open University of Hong Kong (OUHK) almost all fund themselves. These OUHK students were on average 10 years older than their RTVUS counterparts, and together these factors are likely to be reflected in different motivations for study. There was much less difference in pedagogic systems, with all three universities emphasising print-based materials, with audio tape, television and, more recently, ICT forming only a small component. The authors argue that the RTVUS model is indigenous, having grown out of features of its own context, while the OUHK and Indira Gandhi National Open University are both ‘imported’ models.

Reference

Graham Gibbs
Editor
G.P.Gibbs@open.ac.uk
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Practice Guided by Research in Providing Effective Student Support Services

Terry Anderson

Despite the rapid increase in both participation and expenditure in various forms of e-learning, there has been very little sustained research that successfully informs practice in this area. This chapter examines the current problems related to funding and support for this research. It then examines the two major research methodological paradigms – qualitative and quantitative – and notes the problems each has in producing research results that really effect e-learning student support practice. The chapter concludes with a description and a call for a new type of research methodology known as design-based or developmental research. This methodology is demonstrated with a case study example of call centre use in providing student support services. The chapter argues that design based research with its inherent collaborative, integrative and iterative research model offers a methodology appropriate for and capable of improving the quality and quantity of research in this important area.

Introduction

Technical progress and the research that has enabled and supported its developments have fundamentally changed most aspects of daily life for the majority of humans alive during the start of this 21st century. But how has research been harnessed to change educational activity and specifically that delivered at a distance? In this paper, I argue that education generally and especially the newer forms that are sustained on the networks do not take advantage of sustained research and thus the potential contribution of networked learning is severely compromised. There are many reasons for this failure related to funding, the complexity of educational context and most fundamentally to the lack of an educational research culture amongst educators, learners, government policy makers and private sector players. I examine some of the reasons for this failure with specific focus on research methodologies that inform and influence practice related to the provision of learner services that are delivered at a distance. I argue that we need to recommit to the research endeavour. This includes increasing our production and consumption of relevant research using traditional qualitative and quantitative paradigms, but as importantly we need to develop new research paradigms that bridge the gap between scholarship and practice so as to make fundamental improvements to the quality and cost effectiveness of these services.

Defining Research

In my daily life as a Canadian Research Chair (CRC), I come across many understandings, definitions and practices of the activity and process referred to as “research”. For example, computer programmers who work with us constructing Learning Objects Repositories often refer to their work as research, especially in discussion with funders; yet, their work is not driven by theory and their results will not be published in peer-reviewed journals. On the other hand, when in more academic circles, we restrict our use of the term to refer to those activities related to learning object use that are directly related to a
substantial theory base and the data collection and discussion emanates directly from empirical data collection. We also engage in more reflective discourse about the nature of teaching and learning in mediated contexts, using these same object repositories and use words with many syllables – and we refer to this as ‘research’ as well. Finally, we see end users searching our repositories for objects to use in course development and class presentations who consider themselves to be ‘researching’ the topic. It is clear that we do not all share the same understandings of the term.

In the face of such diverse usage of a single term, I flee to Google and its new Define: function to find 31 definitions of the word “research” in common use on the net. From these one can extract adjectives describing research as an activity that is disciplined, organised, transparent, problem orientated, public, creative, scientific, systematic, diligent, laborious and accessible. A more common dictionary definition is “... the systematic investigation into and study of materials and sources, etc., in order to establish facts and reach new conclusions” (Swannell, p. 919). So one sees that there isn’t any distinction that says that research is conducted only by academics, by PhD’s, by grant funded recipients, or by those seeking to publish their results in refereed scholarly journals. Neither is there a sense that research must be of a quantitative or qualitative nature nor that any one type of research is privileged over any other – yet as we will see later, this is far from the way that research is valued by either funders or consumers.

Thus, there is no particular set of procedures or a particular community of practice that has a proprietary definition of “research”. I can, however, suggest a few shared properties. Glassick, Huber & Maeroff (1997) and his colleagues when writing about the scholarship of teaching describe all research as characterised by clear goals; adequate preparation; appropriate methods; significant results; effective presentation and reflective critique. In the paper that follows I try to apply these criteria to a sampling of learner support research.

Defining Student Services

Moving next to a clarification of what is meant by learner services leads to an interesting Atlantic Ocean divide. To most North American’s, learner services encompass all of the functions of a formal learning institution that are designed to help and assist learners, but the actual teaching or functions relating to the discipline of study are explicitly excluded. For example Dirr (1999) includes in his survey of learner services a variety of non-academic interactions that the student has with a college or university, including: pre-enrolment services (recruiting, promotion, orientation), admissions and registration, academic advising, program planning, degree and transcript audit, technical assistance, library and bookstore services, personal and career counselling, social support services, and financial planning and management. But note that the actual teaching or academic and discipline related tutorial support is explicitly excluded from the list. By contrast Thorpe from the British Open University defines learner services “… as all those elements capable of responding to a known learner or group of learners, before, during and after the learning process” (Thorpe, 2001, p. 4) and expressly includes the provision of academic support provided by tutors and teaching faculty. Given that we are this morning on the eastern side of the Atlantic, I will go with the much wider and exclusive definition that includes the important academic teaching function.
Why Conduct Research on Learner Services?

Putting the definitions of research and student services together raises the obvious question of just why research is important or more directly for this audience is what can it do for those involved in learner services? The answer to this question has two components. The first is to consider the very many facets of learner services to which our knowledge is lacking and thus the ways in which our involvement in its provision is compromised. I am sure that many of you could provide a list of issues that are relevant to your practice and that have important consequences both to the lives of learners and to your institution’s capacity to serve, to which your knowledge is at best untested and uninformed and at worst incorrect. These issues probably include traditional distance education questions such as how to reduce attrition, improve learning outcomes, and reduce the cost of services. But, now we are challenged to provide answers to questions raised by new forms of distance education provision, questions such as:

- Just what mix of personal and machine delivered services is needed by learners?
- What combinations of collaborative and group based learning are worth the cost and inconvenience to both teachers and learners?
- Do face to face tutorials really make a difference or is real time video conferencing just as effective?
- Is travelling to a learning centre worth the expense and hassle when we can cost effectively deliver via audio and video to the home or workplace?
- How much does expensive multimedia really enhance student learning; how important are real time interactions compared to asynchronous ones.

The list is long and growing.

It is even more important to ask ourselves if our current research practice is capable of answering these questions. At the recent ICDE conference in Hong Kong, I was on a panel session focused on distance education research. One of the audience members challenged the panel to name one result from distance education research that had really made a difference to practice. It was embarrassing, how long it took both the panellists to come up with some answers. Can you think of an example of where research has informed or guided your practice?

Why Educational Research ‘Don’t Get No Respect’

The American comedian Rodney Dangerfield is famous for his tag line lament that he “don’t get no respect” — a sentiment with which most of us in educational research empathise. Compared to our colleagues in many other disciplines, our research is neither valued (by educational practitioners, potential sponsors or our research colleagues) nor well funded. The growing list of important questions just iterated leads to questions as to why we haven’t done more and a related question of why is it that educational research has not made the contribution to practice that has research in engineering or health care. An easy answer is to blame the lack of public or foundation funding for educational research. Although governments in most developed countries spent only slightly less on education than on health, the discrepancy in amounts spent on research in these respective fields is large and growing. The amount spent in North America on educational research is estimated to be about .01% of total educational expenditures
(Burkhardt & Schoenfeld, 2003). Health researchers set a goal of 3% or 30 times as much for basic and applied health research. This can be compared to other high tech information business that typically spent 15-20% of their turnover on research. To put this in perspective one multinational pharmaceutical company, Pfizer, claimed that in 1999 they spent over 200 million dollars of their 20 billion dollar research budget on research related to treatments for animals – a sum that is nearly 7 times as much as the US government spends on educational research (Smithsonian, June 1999 cited in Burkhardt & Schoenfeld, 2003, p. 3). It is obvious that educational research suffers from an extremely impoverished funding base as compared to related social and private enterprises. But is that a cause or merely a symptom of research productivity?

In a recent Educational Researcher article Burkhardt and Schoenfeld (2003) list a number of barriers that they believe inhibit the productivity of educational research. The first barrier is that it is no one’s job to turn research insights into effective practices. Researchers consider their job complete when their work is published and their granting agency audit is passed. Most practising distance education teachers and practitioners are so overwhelmed with the demands of continuing growth that they feel they have little time for studying research that may or may not meet immediate needs. Secondly, as researchers, we are very inexperienced and suffer a poor track record of working collaboratively on large-scale problems. Where is the educational equivalent of the Human Genome project or even the frantic effort to prove or disprove an educational claim similar to the effort that resulted from the claim of discovery of cold fusion? Unlike in disciplines like physics or medicine, a new discovery does not result in immediate focus of attention on verifying, supporting or refuting initial results. More often than not, I have been surprised by the deafening silence that results from publication of my own research results as from any informed discourse and public search for application and implementation. Perhaps this is only an indication of the value of my own research, but I think this is an experience shared by most educational researchers. Burkhardt and Schoenfeld (2003) also note the lack of an industry that is poised and eager to both support and later to implement and benefit commercially from educational research. The nearest we have to such a commercial base is the book publishers and they have almost a negative incentive to support or exploit research work that investigates substitutes for paper products or that otherwise changes the current nature of the educational system. They also note that there are no “consumer reports’ that compare the effectiveness of one educational product or innovation to another and thus there is little bottom line incentive to improve products to keep ahead of potential competition. Finally, and perhaps most critical is the lack of a research culture within our practice. Unlike health workers, little long-term record keeping or systematic evaluation is done of our performance in learner support and when such record keeping is demanded, it is often treated as a burden rather than an opportunity to enhance professional practice. Further, there is a pervasive sense of mistrust and lack of confidence in educational research capacity to make a difference that either improves learning or makes life more satisfying for either learners or practitioners. In brief, we lack a sustaining research culture.

I next turn to a brief look at the types of research methodologies employed in learner support to see if the way in which research is practised and the types of questions which it addresses could be a related cause in our failure to develop a culture of research.
Education research borrows and adapts research paradigms and tools from many other disciplines. These are often classified into three broad types – a scientific or positivist paradigm; a qualitative or interpretative paradigm and an emerging developmental or engineering paradigm. I will briefly overview these paradigms and illustrate them with examples of recent work in the paradigm related to learner support.

**The Scientific Paradigm**

This research tradition comes from the natural sciences and has had a long series of successes at informing our understanding of the natural world. This research paradigm traces its focus on observable behaviour back to Descartes who wrote in the 17th century that “… those who are seeking the strict way of truth should not trouble themselves about any object concerning which they cannot have a certainty equal to arithmetic or geometrical demonstration” (Descartes, as cited in Lines, 2001, p. 172).

The focus on that which can be consistently measured has evolved to a set of procedures that culminate in the random assignment of learners to treatment groups and the blind evaluation of results of these interventions. Since education is deeply contextualised, a single experiment is always suspect and thus the best research in this paradigm is replicated in many contexts and the results are amalgamated in processes known as a meta-analysis. In our field three such meta analysis have been reported during the past year. In the first Bernard et al. (in press) and his colleagues at Concordia University sought to compare learning outcomes between those who studied at a distance and those who were enrolled in campus based programs. They examined 2,262 studies that had taken place between 1990 and 1999, but berate the fact that only 232 met their requirements for a control group and only a small fraction of these had rigorously used random assignments to these groups. A second study by Ungerleider and Burns (2003) looked at networked learning trials from the year 2000 to the present but found only 25 studies that used comparison groups and of these “only 10 of the 25 studies included in the in-depth review were not seriously flawed, a sobering statistic given the constraints that went into selecting them for the review. Studies were commonly flawed either in design, statistics, or interpretation” (p. 33). Both research teams spoke very critically of the quality of educational research and made calls for dramatic increases in the types of research that could be used to create what is often referred to as ‘evidence based’ results. In fact, this call has been answered by the Americans who promise in their 2003 federal education plan to increase their funding of ‘evidence based research’ from 7 to 70% (Slavin, 2002).

But what did these research results tell us? In the two studies referred to, these meta-analyses found no significant differences between those studying in classrooms and those at a distance. I should also mention a third meta-analysis done by Shachar and Neumann (2003) that did find a small positive increase in learning outcomes in favour those learners studying at a distance. But what if the results had shown very significant results in favour of either mode of delivery? Would they have informed our practice? I think the answer would be a resounding “Not very likely”. The meta-analysis tells us nothing about the critical context in which the learning took place. What learner support services were in place? What was the quality of the teaching or of the content? What was the condition of the home study or the class environment – the list of contextual factors goes on and on. Thus, one can conclude that this gold standard – the use of
randomly assigned comparison group research and subsequent meta-analysis is of only limited use to practising distance educators. These results may be useful in persuading reluctant colleagues or funders about the efficacy of distance education, but they tell us little that will help us to improve our practice.

Despite this problem, many very influential policy makers are now arguing that unless education adopts this type of “scientific and evidence based research”, we will never make progress in the discipline and will be subject to fads and superstitions forever. The famous American education researcher Robert Slavin (2002) contributed to a major revival of the paradigm wars of the 1980’s recently when he argued that educational researchers need to embrace “evidence based learning” rather than the current process that “more resembles the pendulum swings characteristic of art or fashion, rather than the progressive improvements characteristic of science and technology” (p. 16). This plea has fallen on fertile ground in many government circles.

It is not that I am unsupportive of this latest research fad that supports only quantitative and random comparison studies, rather I think that believing that this and only this type of research is either effective or capable of informing policy makers and practising educators is both naïve and unhelpful in garnering the respect and support we most sorely need.

**Qualitative or Interpretive Learner Support Research**

The majority of research published in distance education can broadly be classified as qualitative or of mixed design. Rourke & Szabo (2002) in a content analysis of the Journal of Distance Education classified the research articles as:

- 31% qualitative
- 25% quantitative
- 31% qual & quant (mixed)

Qualitative studies include case studies, interpretive ethnographies, grounded theory, phenomenological studies and a variety of other variations on a research paradigm that seeks to understand and explain practice from the participants’ perspective. This research is usually more easily read (unless it is 400 pages long) and comprehended by practising educators but it too has difficulty showing that it has effect on distance education practice. A recent qualitative study by Dearnley (2003) of students studying at a distance towards their Nursing Degrees illustrates this point. She argues that “… support structures to facilitate personal and professional development within this context need to be in place and attention must be given to the provision of effective learner support” (Implications section, para. 3). These are nice sentiments to which few would disagree. However, an examination of a graphic illustrating the life process of students engaged in this program (figure 1) leaves me with little sense of how we could change or improve our learner support interventions – though again, the study has some value in revealing to us the life forces in effect among this group of learners.
A second study by Cain, Marrara & Pitre (2003) concluded from interviews with eight graduate students studying at a distance that most of the students had no interest or desire to utilise any learners support services other than those provided by their teacher. These types of findings do little to inform or change our practice, at best they leave us with the conclusion to most questions that “it depends” – an answer that most of us know already about learner support provision in distance education. Burkhardt and Schoenfeld (2003) note that the test of quality in much qualitative study is “… critical appraisal concerning plausibility, internal consistency and fit to prevailing wisdom. The key product of this approach is critical commentary” (p. 5). Such commentary by researchers that is produced and often consumed only by fellow researchers does little to directly change or improve practice.

**Developmental or Design-based Research**

A third paradigm of research design is related more directly to the practical discipline focus of engineering and architectural study and work. This genre of research has yet to converge on a single name, but is most often referred to in North America as design-based research. The term “design-based” is generally attributed to the American Researcher Anne Brown from a 1992 article in which she described the challenges of undertaking real life research in classroom contexts. However, the concept is very directly related to the work on van den Akker (1999) and his Dutch colleagues and to Richey, Klein and Nelson (2003) who write about a set of practices that they refer to as ‘development research’ with a particular focus on construction and evaluation of technological learning prototypes. Design-based research has garnered a great deal of attention within the last
year with special editions of the Journal of the Learning Science (13,1, 2004) and the Educational Researcher (32,1, 2003) dedicated to this emerging research paradigm.

I am particularly attracted to what I will refer to as design-based research because it, like many distance educators, is action and interventionist orientated, participant centred and collaborative. Unlike many forms of qualitative research it goes beyond understanding the context from participants’ perspective to actively working with participants to improve, assess and re-design the critical educational context in which learning happens. Moreover, it is unlike quantitative designs in that the researcher is not merely measuring – rather they actively and consistently intervene to iteratively design, redesign and measure variables that are interesting both to themselves and to their practitioner collaborators. In many ways developmental and design-based research are our only homegrown educational research contributions. In the way that anthropologists developed ethnography, educators developed developmental research. Finally, unlike many forms of action research that tend to ignore theoretical development or implications, design-based research also strives to generate, substantiate and improve theoretical constructs that can "… transcend the environmental particulars of the context in which they were generated" (Barab & Squire, 2004, p. 5)

I would next like to provide an example of a design-based study that we are beginning that is focused on an installation of call centres at Athabasca University. I must confess however that this study is emerging from a project that was begun, before I arrived at Athabasca University and thus an example of “building airplanes in the air”.

To set the context let me describe the undergraduate business programs at Athabasca University. This program is our largest undergraduate program enrolling over 11,000 students annually. Unlike many distance education programs globally, the distances from which our students enrol and their low concentration in any one location precludes any face-to-face interaction. In addition, these are continuous intake programs in which a student can enrol at any time and can progress through the course at their own pace. Traditionally at Athabasca the first line of student support has been telephone or more recently email interaction with a tutor. These tutors are ‘on-call’ for two hours a week for telephone interaction and respond to emails within 48 hours. The intervention introduced in 1994 was to create a call centre, modelled on those that have become the mainstream means of customer support in business within the last decade. Three call centres now operate at Athabasca (a general information centre, a computer help desk and a tutorial service within the School of Business) and the operational details of each are similar. Instead of having one day a week in which students can talk with a tutor they can now call or email 60 hours a week and talk, not to a specific tutor, but to an undergraduate business advisor. This advisor likely does not know the student personally but unlike the tutors, they do know Athabasca University Business school – its courses, curriculum, administrative requirements and the answers to questions that students enrolled in the business courses have been asking over the past 10 years. As Phillips and Hawkins (2003) report from the Open University of the UK it is extremely challenging to keep part time tutors informed and knowledgeable about the policies of the University even when this type of administrative information is reported as the most important type of learner services support (Cain, Marrara, & Pitre, 2003). Of course, not all academic questions can be answered by a general advisor not specifically trained in the discipline of study. However we have found that approximately 80% of students’ queries are answered
immediately by the advisors and the rest are referred for response within 48 hours by academic experts. Further, we have found that student satisfaction with the call centre service is high and that this innovation saves the School of Business saves over $100,000 a year (Woudstra, Huber & Michalczuk, 2004). But what has this to do with design-based research?

I would next like to illustrate how a design-based research design is used to provide meaning and hopefully valuable practical and theoretical assistance to practitioners both within and beyond Athabasca University. To do so, I would like to use a model of design-research developed by Bannan-Ritland (2003). Figure 2 provides a diagram illustrating the components and the use of various research methods and data in a design-based research study.

Figure 2: Relationship between stages of the Integrated Learning Design Framework and types of methodology and data collection from Kelly & Lesh (2003)

In this diagram Kelly and Lesh track the four main areas of design research – informed exploration; enactment, evaluation in the local context and finally more general evaluation on a broader scale. They break these four main stages into smaller steps, many of which are familiar to educational researchers. Three things are striking about this diagram. First is the integrative and connected way in which one phase of the design-based research leads to another and that the whole of the research is not complete until the project has worked through all these phases. Much current research reported in our journals is confined to perhaps a needs assessment, a report of an intervention, and the results of a pilot implementation or a wider scale meta-analysis of adoption impact; – design research covers all of these domains and more. Secondly, note that Kelly and Lesh provide examples of the type of methods and data that are collected across each stage of the design process. Here you see qualitative questions, methods and data mixed with those emerging from a quantitative paradigm. Each data set and analysis informs the other. Finally note
how each phase includes the active participation of both researchers and field based practitioners.

Returning now to the call centre project at Athabasca, I illustrate how each phase has or will be incorporated into a design-based research design of this intervention. In the informed exploration stage, call centre theory and practice were reviewed and studied in their mostly consumer support applications. Interviews were undertaken with some of the key actors and other sorts of qualitative data were collected. In the enactment stage the Lotus Notes applications was constructed. Unfortunately, we didn’t gather as much data on the production as we could have and thus there is little data detailing costs, timelines, and design specifications. Such data loss inevitably results in less capacity for the innovation to be replicated elsewhere. Finally, pilots were conducted and results monitored on pilot study and regular students. The evaluation stage consisted of more quantitative data collection. First and most importantly all calls (from telephone as well as email) are tracked in a database. This database can be searched and interrogated by faculty and administrators online using a web browser, thereby allowing faculty to monitor, on a continuing and on needed basis, the type of interactive questions, queries and concerns of their current students. This data can also be monitored over successive years thus gathering longitudinal data that can further inform our practice. This source of data is in marked contrast to the ‘black hole’ in which student interactions with tutors fell into in the past. Previous to the call centre, it proved a very challenging task to gather comprehensive data related to frequency, content and solution to student concerns.

In the local evaluation stage of the design-research annual evaluations of student satisfaction with learner support services are analysed to differentiate between students with traditional tutors and those assigned to call centres. These studies reveal that there is little difference in over all satisfaction. However, it should be noted that some students (and tutors) miss the familiarity that they were used to with a single tutor assigned to a restricted number of students. The final broader stage impact is achieved by ongoing publication of results (Woudstra, Huber, & Michalczuk, 2004; Woudstra & Adria, 2003; Adria & Woudstra, 2001).

We have also learned that the call centre is a disruptive technology. Some of the tutors and their union have expressed concerns that their jobs have been reduced in scope and in resulting compensation. Currently the call centres handle 80% of student concerns and only 20% of the questions are passed on to academic experts for reply. These and other questions are of course monitored, the time for resolution tabulated and the answers are made available for both tutors and call centre advisors in a frequently asked question file. Further design-research work is needed to monitor the effect of this innovation on long term completion rates, academic outcomes and the effect on working conditions of academic, tutors and advisory staff. The data collection incorporated into the system also encourages practitioners to monitor their own work. It provides a ready tool for the development of action and more theoretical research questions and projects since staff are able to easily monitor the effect on student queries of any further innovation on any part of the educational system that directly impacts students. Finally, it is hoped that publication of the research results will result in replication in different contexts, allowing further study and innovation development as the results of these innovations are shared throughout the distance education community.
In summary, design based research provides a path that leads away from the unproductive paradigm wars that threaten to break out once again within the educational research community. The vitriolic nature of the argument between advocates of competing research paradigms marginalises, stereotypes, separates, and backgrounds competing positions. Lines (2001) argues that we “… been seduced into accepting the inherent value and power differentials that operate in the dualist construction of the ‘quantitative/qualitative’ binary pair of terms” (p. 173) and that this confrontational attitude is highly unproductive for those seeking further support for educational research. Harkening back to the extremely low amount of funding currently available for educational research reminds me of the old saying that “within academia the acrimony of debate is so high because the stakes are so low”.

There is no one correct way to conduct research. Each methodology has particular strengths and weaknesses, works better with different problems and better suits the culture and personality of different researchers and the context in which they work. But there is no inherently superior methodology either. In a very interesting study, Kennedy (1999) asked a group of practising teachers to evaluate research papers that used a variety of methodological designs on a wide set of criteria including usefulness, understandability and potential impact on their practice. She concluded that “… the findings from this study cast doubt on virtually every argument for the superiority of any particular research genre, whether the criterion for superiority is persuasiveness, relevance, or ability to influence practitioners’ thinking” (p. 26).

Finally, I should note the variety of ways in which the Net is changing educational research. Anderson and Kanuka (2002) document the many ways in which the Net both facilitates traditional and allows new ways to examine learner behaviours in educational contexts. We conclude that new net tools can be used to research not only online behaviour but also very effective tools to survey and interview subjects engaged in non-net based educational activities.

The Dissemination of Research and Best Practices

Even the best of research is of little value unless its results and recommendations reach the busy practitioners who are in a position to implement the findings and best practices revealed. Traditionally, this has been done through paper journals, conferences and more recently via email discussion lists. The cost of travel and inconvenience of travel limits the effectiveness of face-to-face conferences. Virtual, real time conferences have their place, but the demands of real time obligations limit their effectiveness for practitioners. Further, conferences provide a type of information that might be described as ‘hit and miss, just in case’ that only coincidentally meets immediate needs. Mailing lists are also useful but their proliferation as well as the ‘spam’ that accompanies all useful email, limits their usefulness. Paper journals and especially those published by for profit publishers are increasingly too expensive for many of the world’s distance education practitioners – although access through databases such as EBSCO is an encouraging sign.

At the risk of being accused of self aggrandisement, the model of publishing high quality peer reviewed research articles and technical reports and making these articles available to all, such as is the practice of the journal that I edit, is the most cost effective and accessible way to encourage meaningful dissemination. Athabasca University’s journal the International Review of Research on Open and Distance Education (IRRODL)
is possibly the most widely read of the peer reviewed journals. I am also pleased to see the developments of Europe’s International Research Foundation for Open Learning with one of the core functions being the dissemination of research results as well as training practitioners and researchers. I especially am pleased to read about the upcoming publication of a series of online handbooks for researchers to be published in conjunction with the Commonwealth of learning. Yet another example of the value of open source type distribution of research results and best practice is the recent publication by Anderson and Elloumi (2004). 3700 copies of this 17 chapter book were downloaded during the first two weeks in which the e-book was placed online. This number compares very favorably with the 2,000 copies of Anderson & Kanuka (2002) – many of which still sit in the virtual sales racks of Amazon.com.

However, even the best of articles gets lost in a sea of electronic information and is too often forgotten by busy researchers and distance education practitioners. We need to develop systems that allow for qualifying, organising, and harvesting research data and summary articles. The emerging semantic web (Berners-Lee, Hendler, & Lassila, 2001) offers promise to meet this need. A first step towards this goal has been done recently with the publishing of all IRRODL documents in (rich site summary) RSS format. Although a simple system, the XML coding of four important fields (title, author, abstract and link to the full text) in RDF format to create the RSS feed is a first step in allowing content to be stored and harvested selectively by both machines and by people. In further work we have recently been working on ontology of educational research terms that we hope will provide a much richer means to identify and retrieve articles from throughout the educational world. Applying and growing the metadata that describes not only the results of individual research projects but metadata that grows in an organic fashion as it informs and is further informed by practice and later research is a looming challenge that we are just beginning to understand. The Educational Semantic Web does not yet exist but my experiences editing with Denise Whitelock a special issue of the Journal of Interactive Media (2004) (www-jime.open.ac.uk) convinces me of the potential value of this technology – despite the considerable obstacles yet to be overcome.

**Conclusion**

To conclude let me reiterate that we desperately need an increase in both the quality and the quantity of educational research and especially that devoted to learner services. Further, this research must involve and be co-directed by practitioners so that the results inform and inspire practical improvements. To achieve this goal we need to fight much less about the various research paradigms that are available and learn to integrate all research paradigms – extracting value and meaning from each as it provides effective tools to answer our many problems. The emergence of developmental or design-based research seems to offer a promising new methodology that can effectively use all research methodologies in a process that follows interventions through from literature and theory research, to multi-mode data collection to implementation and adoption studies. The development of such a methodology gives promise for the creation and sustenance of a vibrant research culture in distance education. Cultures are not formed quickly, but once established and nourished they provide the sustaining impetus for collective action that is so desperately needed in our mission of providing quality educational opportunity to every inhabitant of our global home.
Reference


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Access and Equity in Distance Education: Research and Development and Quality Concerns

Keynote Address by Peter S. Cookson
Director, Institute for Research in Distance and Open learning
Editor, International Review of Research in Open and Distance Learning
Athabasca University -- Canada’s Open University

Annual Conference of the Asian Association of Open Universities
22-26 February 2002
New Delhi, India

Introduction

Vice-Chancellor Dikshit invited me to address the topic of "Access and Equity in Distance Education: R&D and Quality Concerns." More importantly, I am aware that the Asian Association of Open Universities represents a long-standing and distinguished community of distance education practitioners and scholars. That is why I feel honoured to be invited to speak at this conference on a topic near and dear to my heart. Years ago, after returning from two years of missionary service in Latin America, I decided to pursue a career working with the poor. I thought that two degrees in sociology would prepare me for such a career. I was wrong. Therefore, upon completing my second degree in sociology, I decided to discontinue my studies in sociology in favour of the more applied discipline of adult and continuing education. More than merely contributing to the reservoir of human knowledge, my personal aim was to draw from that reservoir to improve the quality of life of socio-economically disadvantaged adults. However, by the time I was awarded my Ph.D., I had become thoroughly moulded by the University of Chicago, to become a university professor and researcher rather than a community organizer of the socio-economically disenfranchised at the grassroots level. Still, after all these years, I remain committed to apply whatever competencies I may gain in order to make a difference in the quality of life for individuals, families, and communities outside the mainstream of privileged society.

That is why I was thrilled last year to work with the Open University of Sri Lanka. My role in this project was to identify areas needing improvement in order to increase access — equitable access — to open and distance learning for people not currently served by the current postsecondary education system.

My aim today is to stimulate further thought and discussion over the course of this conference. For the past 15 years, I have worked as a researcher, professor, practitioner, and student of open and distance learning. During this time, I have had opportunities to observe continuing and distance education programs in higher education institutions in Latin America, the Sudan, and Sri Lanka. At the present time, at my own institution, Athabasca University -- Canada’s Open University, I am teaching a course, "International Issues in Open
and Distance learning." One of the explicit premises of this course is that distance education practices that emerge in one country -- for a host of reasons -- may not necessarily successfully transfer in other national and cultural contexts. Despite that premise, my assumption is that if we focus on the principles that underlie specific practices, specific innovations originating in one national and cultural context may more likely be adapted to fit other national and cultural contexts.

The central thesis of my presentation, therefore, is this: If open and distance learning institutions are to increase access and equity, they will be only as effective as they enact a genuine commitment to quality. Such a commitment can be forged and reinforced by a concerted program of research.

My presentation is organized around four questions: (1) What is quality in open and distance learning? (2) How do we assess quality of open and distance learning? (3) How can institutional research and mission critical research contribute to an institutional commitment to quality? And (4) how can open and distance learning institutions harness both institutional and mission-critical research in the quest for increased quality?

1. What is quality in open and distance learning?

When we refer to the attribute of quality in open and distance learning, what are we referring to? Here in India considerable research and scholarship have been devoted to the question (Rao, Srinivasacharyulu and Mohanraj, 1995; Panda, 1999). In 1994 the Dr. B. R. Ambedkar Open University, India’s first open university, convened a National Seminar on Quality Assurance in Distance Education. In his seminar keynote address, Professor Prakash M. Deshpande, Director, Distance education Council, IGNOU, reviewed different definitions of quality. He quoted the then Prime Minister of India, the Honourable Sr. P. V. Narasimha Rao, who had advised the universities to "not get contented with anything" they had already done, but to continually strive for excellence. Professor Deshpande ended his address with this incisive statement, "When we are talking about quality we are inevitably talking about excellence." (Deshpande, 1995, p. 18)

Excellence may be defined as the state of being good or superior relative to certain standards. In the field of open and distance learning, standards may be set institutionally, by associations or agencies. In higher education in general, the concept of quality comprises . . . caring for clients, coherence in teaching and learning processes, and responsiveness to changing client needs. In universities, quality expectations focus on public accountability, student learning, faculty productivity and performance, program effectiveness, and institutional evaluation (Peterson and Dill, 1997, cited in Gumport and Sporn, 1999, p. 112)

Let us now turn to how we may assess quality in open and distance learning.

2. How do we assess quality of open and distance learning?
In his recent book, *Open and Distance Learning in the Developing World*, Hilary Perraton (2000) spares no punches in pointing out the factors associated with both success and failure. His final chapter reviews the legitimacy of the field in light of five criteria drawn from a paradigm for assessment developed by McAnany (1975). These same five criteria: *effort*, *performance*, *adequacy*, *efficiency*, and *process* may serve equally well as criteria of quality in open and distance learning. Let us now look at these five criteria:

**Effort**

The first criterion of quality, *effort* refers to the activities that open and distance learning institutions carry out. According to Perraton (2000, p. 192), it is the criterion most easily examined. Indicators of effort include: numbers of degrees, diplomas, certificates and courses designed, developed, and delivered; numbers of applications, admissions, registrations, examinations, and finally, the credentials awarded. Growth in such numbers suggests expanded capacity to meet students’ needs. Such indicators may be tabulated, summarized, and results for different moments in time may be compared and inferences may be drawn about their meaning. These are the kinds of indicators often mandated and reported by government agencies, permitting comparisons between open and distance learning institutions and conventional universities. Reports of effort usually place open and distance learning institutions in a favourable light, relative to their conventional sister institutions.

Questions that address the criterion of *effort* may include:

1. How much effort is being made? How is such effort reflected in the numbers of students who: apply for admission; register for coursework; are admitted; begin coursework; transfer from and to other higher education institutions; sit for examinations; complete their respective certificate, diploma, or degree programs?
2. Is the effort being made effective? Is the effort bringing the anticipated results?
3. Over time, what are the discernible trends in efforts made by the institution as a whole and by individual academic units?
4. What can we infer from these trends? How may these trends be explained?
5. How do the efforts of the institution compare with efforts made by other higher education institutions in general, and other open and distance learning institutions in particular?
6. Are there regular opportunities for key players in the institution to analyse these indicators of institutional effort? To what extent is there follow-up from such analyses?
7. How are the institution and its composite academic units held accountable for their respective efforts?
8. Are the results of the institution’s effort being reported to internal as well as external key stakeholders?
9. Are internal resources allocated to the respective faculties and academic departments on the basis of their efforts?
10. Does the institution invest time and resources to conduct systematic reviews of ways to increase effort?
11. To what extent are students from all geographic areas within the service area (a state, region, or nation) represented? Are there geographical areas or categories of students that are over-represented or under-represented? If so, what are the implications for the institution?
Performance

The second criterion of quality, performance, refers to the effects of the institution’s activities on those whom it serves. Perraton (2000, p. 193) points to five indicators of changed performance of students: change in productivity, change in work practices, learning gains, successful completion, and examination performance. According to Perraton, evidence is mixed that open and distance learning, compared with conventional face-to-face education, affects the conditions of employment. While learning gains for students who complete their respective open and distance learning programs tend to be on par with conventional face-to-face education, student completion rates and examination performance tend to be lower. The literature points to factors responsible for the usually high attrition reported by most open and distance learning programs. These include students’ characteristics, situational factors, and institutional factors. I submit the lower levels of performance in terms of successful completion rates are not necessarily intrinsic to open and distance learning. Institutional interventions (such as faster turnaround time for marked assignments; orientation sessions; training in study skills; increased interaction with tutors, advisors, and/or counsellors; activities designed to increase social and academic integration; and other forms of learning assistance) may mitigate the effects of such factors and thus lead to higher levels of performance.

With respect to the first two indicators of performance relating to employment, it may be argued that to the extent the institution welcomes and incorporates the ideas and suggestions of the employment sector, to that same extent the resulting instruction will have relevance for the current and future occupational contexts for students. Recognizing the relevance of what they learn to their current and/or future work, students will be more likely to remember and apply what they have learned and thus become more productive. But faculty members who have spent their lives in academe, immersed in their academic disciplines, divorced from the related fields of practice, cannot expect to oversee the design, development, and delivery of instruction that will directly affect students’ work performance and productivity. Department heads, deans, and central administrators who likewise have spent their entire work lives inside the academy may similarly not value input from representatives of employing organisations outside of the institution. To strengthen these indicators of performance, it is essential for the institution to incorporate, at multiple levels, input from the productive economic sectors of society.

The suggestion contained in the previous paragraph that the employment sector should have a significant voice in the determination of higher education curricula should not be misconstrued as an argument for reducing the purposes of higher education to occupational readiness. Rather, it is merely an argument for more involvement of actors in the world of work who have a stake in the preparedness of higher education graduates to assume the tasks and responsibilities of employment than is typically the case. It is equally essential that graduates be prepared to assume the moral, intellectual, and civic responsibilities in their respective families, communities, and societies. Voices from the employment sector, though essential, constitute only one source of input regarding the intellectual, social, and spiritual growth that should occur as the result of one’s higher education experience.
With respect to other performance indicators, learning gains, successful completion, and examination performance, open and distance learning institutions face significantly greater challenges than those encountered by conventional, face-to-face institutions. Committed to the removal of barriers to higher education, open and distance learning institutions tend to admit students who, lacking prior academic credentials, would otherwise be unacceptable to other institutions. But "access is only the first step" (Gumport and Sporn, 1999, p. 114), for once students are admitted they need to engage a learning environment that will facilitate their retention and study program completion. Unless provision is made for such students upon admission to remediate their learning deficiencies, they will inexorably be handicapped in their subsequent studies and their subsequent learning gains, and completion rates. Similarly, their examination performance will be predictably inferior to those registered by their conventional student counterparts.

Expressed positively, provision must be made for diagnostic testing of incoming students in order to identify deficiencies that, when unattended, will lead to deficient learning gains. Learning assistance programs (what the Open University of the UK refers to as "Access courses," the Open University of Sri Lanka refers to as "Foundation courses," and US universities refer to as "gateway courses") must be offered to enable open and distance learning students to make up previous deficiencies. Such programs can operate on the mastery learning principle that anyone who has the will and a reasonable modicum of intelligence, given the appropriate opportunities and sufficient time, can learn just about anything. Learning assistance will require investments not only in remedial courses, but also in effective teaching materials and effective tutorial instruction responsive to students’ identified learning needs. These performance indicators will also be optimised when institutions, even those that do not impose admissions standards, consider students accountable for their course marks and accordingly are prepared to require previously enrolled students to demonstrate mastery of prerequisite skills before permitting them to enrol in more advanced courses. The practice of some institutions of allowing students with a passing mark as low as 40% to advance to courses at more advanced levels, seems to me to be an irresponsible practice that dooms students to unavoidable failure. With appropriate interventions, students can be enabled to pass their courses with a sufficiently high level of proficiency to succeed in courses at the next higher level.

We can ask such questions of the criterion of performance as:

1. In the governance structure -- at central, faculty and academic department levels -- what priority does the institution place on ensuring that representatives of the productive economic sectors have a voice?
2. Are the numbers of such representatives sufficient to prevent their voice from being drowned out by the voice of representatives of non-productive economic sectors?
3. In the course design, development, and delivery phases of instruction, is the institution committed to integration of relevant contributions of those sectors in which students are likely to be employed?
4. Does the institution provide opportunities for students to integrate academic coursework with work experience?
5. Are tracer studies of students who complete their certificate, diploma or degree programs, conducted to determine the effects of participation in the institution’s programs of study on their employment?

6. Do curricula take into account the employment contexts in which students are most likely to apply what they have learned in their programs of study?

7. How well do students master the content of their courses? (It should be noted that content mastery is often the only performance indicator studied, thus creating the potential to attribute deficiencies to students, tutors or materials rather than more systemic issues of performance addressed by the other indicators referred to here.)

8. What are the personal, situational, and institutional factors related to learning achievement, examination performance, and program completion in the various programs of study?

9. How do the patterns of learning achievement, examination performance, and program completion vary by certificate, diploma, and degree programs offered by different academic departments and faculties? How is such variation explained?

10. How do the patterns of learning achievement, examination performance, and program completion vary by disadvantaged group status?

11. Do the patterns of institutional performance suggest institutional interventions to effect improved performance?

12. What additional information is needed before institutional interventions may be introduced?

Adequacy

The third criterion of quality, adequacy, refers to the capacity of open and distance learning institutions to meet the educational and social needs of their students. The extent to which credentials from open and distance learning institutions enable students to attain upward social and occupational mobility has yet to be determined. Also unknown is the extent to which open and distance learning institutions compensate for the inability or unwillingness on the part of conventional universities to satisfy the educational demands of those secondary school leavers. Perraton (2000, pp. 194-196) reminds us that part of the problem of adequacy may lie in the fact that in many countries open and distance learning institutions are yet to be recognized as being on par with conventional higher education institutions.

One way to increase the acceptability of open and distance learning institutions is for regulatory and policy-making bodies such as state or national ministries of education to exercise leadership in the development of national accreditation and quality assurance schemes. Such schemes would include provision for common course currency for all institutions, a generally uniform schedule of semesters, agreed upon standards for similar courses, and common norms for assignment of marks (Tillekeratne, 2001). When in place, such uniform metrics can facilitate transferability of credits and mobility of students from one institution to another. However we cannot expect individual faculty "craftpersons" to enthusiastically embrace such reform as it removes their sole prerogative on judging quality. Change of this magnitude requires leadership, incentives and an awareness of the relative advantage of such "progress" to the students themselves, the institution, and society.
Institution level steps to increase adequacy can include identification of specific nature of identified social, economic, and educational needs to which educational programs may respond. Representatives from economically productive and other employment sectors can be given a voice at all levels of governance -- not to dictate what and how programs are taught, but rather to encourage integration of relevant theoretical and practical knowledge. Course authors, tutors, and other academic staff who regularly seek experiences in business and industry interaction with field practitioners will gain insights about how to be more responsive to students’ learning needs.

Questions that address this criterion of adequacy include:

1. What operative structures (forums, internships, advisory groups, governing councils, field advisors, external members of curriculum development teams, etc.) are in place that enable academic staff members to engage in dialogue with knowledgeable stakeholders who are in a position to recommend how to meet the social, economic and educational needs of current and future workers in their respective fields of practice?
2. What image of quality does the institution project to the conventional university system, government and regulatory bodies, prospective students, parents, or employers?
3. How much support is there on the part of state or national ministries, other regulatory bodies, and higher education institutions for a unified postsecondary education accreditation and quality assurance scheme?
4. What provision is there for academic staff to interact with issues and people associated with the fields of practice that relate to their fields of study?
5. What has the institution done to document the social and education needs of students?
6. Questions regarding students’ learning (Hutchings and Shulman, 1999, p. 8):
   a. What are students really learning?
   b. What do they understand deeply?
   c. What kinds of human beings are they becoming — intellectually, morally, in terms of civic responsibility?
   d. How does the teaching provided in the institution affect that learning and how might it do so more effectively?
7. What provision is there to enable students, representatives of business and industry, and both internal and external academics, to evaluate the institution’s coursework and programs of study?
8. How strong is the institutional commitment to act (revise or amend existing courses) in response to feedback from students?
9. Are follow-up studies routinely conducted of both completing and non-completing students, to determine the extent to which the institution’s programs of studies have met their needs?

Efficiency

The fourth criterion of quality, efficiency, refers to the cost of open and distance learning. Perraton (2000, p. 196) and H Ismann (1999) distinguish between two types of costs: costs per student and cost per successful student. Because large numbers of students, in some open and distance learning institutions, particularly those that Daniel (1996) refers to as mega universities, fixed costs can be extremely low. When interaction is kept at a minimum,
variable costs per student can also be low. Despite the rhetoric and common beliefs to the contrary, fixed and even variable costs of sophisticated educational applications of information communications technologies can be prohibitively costly (Bacsich, 1999; Milam, 2000). In reporting their expenditures, open and distance learning institutions tend to emphasize cost per student rather than the usually less flattering cost per successful student. Perraton (2000, p. 196) reports that open and distance learning programs that are efficient in terms of this second type of cost are the exception rather than the rule.

Effective recruitment and retention strategies are essential if large numbers are to begin and complete their open and distance learning programs. Marketing is indispensable to successful branding, i.e. "giving a product or service a meaning that customers will want to buy into because it appeals to their sense of identity or inchoate aspiration to belong to some subgroup or subculture" (Lachem and Hanna, 2001, p. 20). Once attracted to participate, however, students needed to be guided into and through their programs of study. As Rao and Rao (1999, p. 24 in ASHE-ERIC, 2000, p. 46) point out, "Access means not only providing physical access to instructional technology, but also creating a host of supportive factors that contribute to the use of that instructional technology." Accordingly, student orientation, remedial instruction for those with deficiencies, enforcement of practical and realistic standards of academic achievement and advancement to higher levels of study, and other forms of effective student learning assistance and tutorial instruction, will increase the students' chances of academic survival. At the same time, such practices will increase costs per student in open and distance learning, but also reduce the institutional costs per successful student. The challenge of open and distance learning institutions is to convince both internal and external stakeholders that to place priority on retention measures, while actually reducing efficiency in the short-run, may actually result in more favourable returns on investment in the long run.

Questions that address the criterion of efficiency include:

1. What is the relative distribution of weight given to the two measures of efficiency: cost per student and cost per successful student?
2. If cost per successful student were to become the first priority, what changes would be made to the administrative, curricular, teaching, and student support operations of the institution?
3. What strategies might the institution deploy to raise the level of acceptance on the part of stakeholders of cost per successful student as a primary measure of efficiency?
4. Are academic and administrative units with the institution accountable for the resources they are allocated?
5. How efficient are the academic units (programs, departments and faculties) within the university?
6. What are the relative effects of specific institutional interventions designed to increase institutional efficiency in terms of cost per student and cost per successful student?
7. What additional interventions might be introduced to increase institutional efficiency?
8. Does the institution’s measure of academic success at one level of study represent a sufficiently level of proficiency to permit advancement to subsequent levels of studies?
9. Are the institution’s measures of efficiency in terms of cost per successful student based on genuine academic success?
10. What other changes to the institution’s operations need to be made to increase institutional efficiency?

Process

The fifth criterion of quality, process, comprises a series of actions or operations conducive to particular ends. With reference to open and distance learning, processes may be identified in connection with each of the following five distance education subsystems:

1. **Course subsystem**: creation, production, distribution, and evaluation of instruction.

2. **Student subsystem**: administrative functions for management and control of students’ progress such as registration, orientation, learning assistance, allocation to courses, collection of fees, ensuring receipt of course materials, and communication of expected performance.

3. **Regulatory subsystem**: practices of the academic and administrative decision-making staff and bodies in the governance, management, and management of reward and accountability within the institution.

4. **Logistical subsystem**: functions of procurement and supply of required resources (purchasing, maintenance, and personnel).

5. **Technological subsystem**: information communications technology (ICT) infrastructure harnessed in the design and delivery of instruction.

[Note: Kaye (1981) named the first four of these subsystems that characterize distance education provision. In light of the salience today of ICT, I have added the fifth subsystem.]

The experience of benchmark institutions in the field of open and distance learning has contributed to the broad consensus as to what constitute good process in open and distance learning. Although as Perraton (2000, pp. 196-199) asserts, there is widespread failure to apply what is known, institutions committed to excellence will put in place structures, policies and procedures -- quality assurance mechanisms -- that will increase the likelihood that open and distance learning processes and services meet standards of quality for each of these subsystems. Accompanying the design, development, and distribution of courses, there will be recourse to formal standards of excellence, iterative processes of formative evaluation, and staged formal approval mechanisms. The appropriateness of the nature and scheduling of all of an institution’s interactions with prospective, current, and former learners -- in the promotion and advertising of activities, registration sessions, face-to-face sessions, laboratory and practical exercises, examinations, and arrangements for work experience -- will be reviewed regularly to ensure priority is given to the convenience and circumstances of the learner, rather than to the institution. Central administrative decisions will be made in light of systematically gathered institutional intelligence, following consultation with those likely to be affected. Administrative, academic and other staff members will be held accountable for their performance in accordance with rational and mutually agreed-upon standards of practice, after which rewards are allocated accordingly.
Questions that address the criterion of performance may include:

1. How are knowledge, skills, and sensitivities relative to good practice in open and distance learning disseminated throughout the institution?
2. What provision is there for training to reinforce and advance beyond initial basic staff training in particular open and distance learning processes?
3. Are staff members accountable for their work performance?
4. Are rewards (promotion, tenure, annual salary increments, etc.) within the institution reflective of demonstrated accomplishments?
5. Is there an operating information system that enables recording, tracking, and projecting individual and unit performance at every level?
6. Are standard metrics in place that permit comparative analysis of different units and operations both within the institution and with other institutions?
7. With respect to the courses, teaching, administration, and support services (Daniel, 1999, p. 7-9):
   a. Do they lower costs?
   b. Do they expand access?
   c. Do they achieve the highest standards of social utility and intellectual development?
   d. Do they provide what the customers want?
   e. Do they represent the best value for the learners, workforce and economy?
8. If programs are delivered internationally (Daniel, 1999, p. 9):
   a. Are they culturally relevant?
   b. What is the quality of the local partnerships and support systems?
   c. How are the graduates and their qualifications regarded in the host country?

These five criteria -- effort, performance, adequacy, efficiency, and process -- provide useful focal points for what Paulo Freire referred to as *praxis* -- a recursive process of analysis and application -- aimed at overall improvement. Open and distance learning institutions in developing countries are often stymied by barriers of severe financial constraints and minimal budgets, variable political climates, vastly over committed staffs, depleted talent, dysfunctional infrastructures, and lack of experience (Kells, 1995, p. 168) -- conditions that are endemic in many societies. However, seeking ways to overcome these barriers, institutions committed to continuous quality improvement will actively increase effort, maximize student performance, augment adequacy of response to students’ identified needs, boost efficiency in terms of decreasing both costs per student and costs per successful student, and continuously upgrade the processes of their operations. Such organisations will make a concerted effort to foster structures, processes and an institutional culture conducive to acceptance of a social mission committed "to provide structures, processes and services which assist . . . most adult students, regardless of age, gender, economic status, geographic location, employment status, and previous educational experience, given the opportunity and support . . . [to] succeed in studies at the university level (Paul 1993, p. 116).

In other words, equitable access to underserved learners will be a high institutional priority. Learners served by such institutions will include secondary school leavers not admitted to conventional institutions, working adults unable to attend university on a fulltime basis, students with physical handicaps, students in rural areas distant from urban institutions,
mothers at home caring for children, members of minority ethnic groups and scheduled castes, and students unable to afford the high fees of private postsecondary institutions. An institution devoted to such improvement will certainly not be concerned with merely enrolling such underserved categories of learners, but also providing them with the support services required for success in their respective programs of study.

Underlying an institution’s quality assurance mechanisms will be systematic data collection, analysis, and reporting practices. This brings us to the contributions that research can make to increase quality so essential to improving equitable access.

3. How can research contribute to an institutional commitment to quality?

Having spelled out five criteria for determination of quality in open and distance learning, I will now discuss how research and development can contribute to an institution’s quest to become an institution of uncompromisingly high quality. In this discussion, I will refer to two types of research: institutional research and mission-critical research. Let us look at each type and the contribution each can make to improvement of quality and, in turn, expanded equitable access.

Institutional Research

Institutional research is research conducted to provide different members of an institutional community with timely, accurate and meaningful information that informs administrative decisions about different aspects of the institution’s operations. Typically staffed by one or more research officers, institutional research offices depend on "reliable access to institutional data generated by the routine activities of the Office of the Registrar" (Institutional Studies, 2002, p. 1). Without such data, internal and external reporting requirements cannot be met.

Although individuals and both academic and administrative units across the institution may be involved, the Institutional Research Office can serve as the lead resource in seeking answers to questions of quality for each of the five criteria we have just discussed. In the absence of illuminating, reliable and valid data, an institution may find it all too easy to ignore what may be chronic problems, resulting in reduced capacity to provide equitable access. At Athabasca University, Canada’s Open University, the role of the Office of Institutional Studies is made clear in the following statement of its goals:

1. Provide members of the University community with timely, accurate and relevant information that will enable informed decisions that result in improvements in all aspects of the University’s operations.
2. Respond to external reporting requirement of government and accreditation agencies.
3. Provide data summaries and/or technical assistance in support of specific planning or quality assurance activities including service unit and program reviews.
4. Conduct ongoing analysis of existing data to proactively identify trends and issues relevant to University planning and administration.
5. Contribute to the Governing Council’s monitoring of the implementation of the Strategic University Plan by developing and reporting on performance measures.
6. Undertake enrolment forecasting to inform planning and budget processes.
7. Disseminate knowledge about the measurement and effectiveness of Athabasca University’s approaches to open and distance learning. (Office of Institutional Studies, 2002, p. 2)

To illustrate the contribution to the functioning of an open and distance learning institution, to be made by institutional research, the schedule for reports to be conducted by the Athabasca University Office of Institutional Research is shown in Table 1.

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<tr>
<th>Type of Reports</th>
<th>Name</th>
<th>Date Expected</th>
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<tbody>
<tr>
<td>External</td>
<td>Learner Enrolment/Program Registrations</td>
<td>Annual December/June</td>
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<td>Duplicate Application Detection</td>
<td>Annual Mid-October</td>
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<td>Transfer Credit Report</td>
<td>Annual End of October</td>
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<td>Key Performance Indicators</td>
<td>Annual November</td>
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<td>Statistics Canada</td>
<td>Pending Provincial Decision</td>
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<td>KPI Surveys</td>
<td>Alternating Graduates/Graduands</td>
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<td>Internal</td>
<td>Academic Services Satisfaction</td>
<td>Annual</td>
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<td></td>
<td>Climate Survey</td>
<td>Annual (Alternating Tutor/Staff)</td>
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<td></td>
<td>Student Profile</td>
<td>Bi-annual</td>
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<td></td>
<td>Performance Indicators</td>
<td>Annual</td>
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<td>Student Services</td>
<td>Registry</td>
<td>March –2002</td>
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<td></td>
<td>Counselling/Advising</td>
<td>October –2002</td>
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<td>CS Training</td>
<td>March – 2003</td>
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<td>Library</td>
<td>June -- 2003</td>
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<td></td>
<td>CS Helpdesk (Staff &amp; Student)</td>
<td>October –2003</td>
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<td></td>
<td>Learning Centre Services</td>
<td>October –2003</td>
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<td></td>
<td>Registry</td>
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<td></td>
<td>Advising/Advising</td>
<td>October –2004</td>
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<td></td>
<td>CS Training</td>
<td>October –2004</td>
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<td>Demographic</td>
<td>Attrition Study</td>
<td>2002</td>
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<td>International Student Profile</td>
<td>2002</td>
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<td>Visiting Student Profile</td>
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<td>Staff Equity Profile</td>
<td>2003</td>
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<td>Graduate Students Profile</td>
<td>2003</td>
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<td></td>
<td>Indigenous Students</td>
<td>2004</td>
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<td></td>
<td>Students with Disabilities</td>
<td>2004</td>
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To summarize, this type of research provides the institutional intelligence required to inform decisions that can influence the maintenance and improvement of quality, so essential if the institution is to fulfill its social mission of openness to those members and groups in society whose educational opportunities would otherwise diminish or disappear.
Mission-Critical Research

Besides institutional research, my university supports a second type of research that we term **mission-critical research**. This type of research elsewhere is referred to as **action research**, which two distance education scholars (Ramakrishna and Prasad, 1999) in India have explained:

> Action research is more in the nature of an inquiry related to an activity. Action research is expected to help the distance teaching institution to do a better job. It may result in changing a policy, re-drafting some material, launching or withdrawing a programme, change of programmes and systems etc. (p. 10)

At Athabasca University mission critical research is defined as research that examines technology and pedagogy in distance education, research into distance and open learning methods, and comparative studies. Each year, the university provides modest financial support for two research competitions: one for university academic staff and another for graduate students. Both competitions provide grants for small-scale studies that may lead to qualitative improvements in some aspect of university products or services. In addition to supplementing institutional research, mission-critical research contributes to the "scholarship of teaching and, at the same time, increase motivation of staff members to innovate improvements in open and distance learning strategies. In turn, such improvements can have positive implications for increasing access and equity. The activities of academics and students focused on optimising aspects of university operations contributes to the development of an institutional culture of both quality improvement and research.

The following is an illustrative list of the kinds of mission critical research studies conducted by Athabasca University academics:

- Charting distance learning
- Analysis of asynchronous computer conferencing behaviour in graduate education courses
- Identification of competencies required by computer conference moderators
- Health issues in human computer interaction
- A proposal to test the relative effectiveness of Accounting 253 material delivered via on-screen and paper-based mediums.
- Student interaction management and organisational design
- Time for reflection: An exploration of the time basis of media richness theory (to explore the emergence of rich communications during learning interactions which occur in three media — face to face, video conference and asynchronous online)
- Students with disabilities: their success and experience with Athabasca University courses
- Psychological and social issues in human-computer interaction

This mission-critical research fund not only supplements institutional research conducted on behalf of the central administrators of the institution, but also stimulates "scholarship of teaching" (Boyer, 1999; Cross, 1997; Glassick, Huber, and Maeroff, 1997; Cambridge, 1999) that calls for "sustained inquiry into . . . teaching practice and . . . students’ learning"
Access and Equity in Distance Education

It requires a kind of "going meta," in which faculty frame and systematically investigate questions related to student learning — the conditions under which it occurs, what it looks like, how to deepen it, and so forth — and do so with an eye not only to improving their own . . . [teaching] but to advance practice beyond it (Hutchings and Shulman, 1999, p. 5).

One might speculate, "What if half of the research undertaken by faculty at DE institutions was "mission critical" and regarded as "scholarship of teaching." Wouldn’t that change the shape and focus of research and development in DE?

4. How can open and distance learning institutions harness both institutional and mission-critical research in the quest for increased quality?

Institutional and mission critical research can contribute to qualitative improvements in overall effort, performance, adequacy, efficiency and process within open and distance learning. Of this, I became convinced last year when I had an opportunity to examine, under a microscope, as it were, the operations of the Open University of Sri Lanka. I examined institutional reports, conducted numerous interviews and surveys with administrators, academics, other staff members, and students. These data collection activities yielded clear impressions about institutional activities that, if implemented, would result in significant improvements in the quality of operations. Such improvements would have the effect of increasing the university’s capacity, not only to increase access, but also to retain the students it admits and thus dramatically increase the completion rates across all faculties. To report my findings, I compiled a flow chart of the constellation of institutional factors contributing to OUSL student attrition.

To serve as a basis for broader generalisation, I have redrawn that flowchart to switch the focus to institutional factors that can contribute to improvements that, in turn, will result in a greater probability of retention of students in their programs of study. Figure 1 illustrates an outcome of institutional research and reflection that may be followed in other institutions to identify those institutional factors amenable to correction and/or improvement. The six categories in which I have clustered the various institutional factors are obviously not necessarily mutually exclusive. Nor do they represent all of the institutional factors that could be deployed to bring about increased student retention. Other factors could be added. My point in sharing this with you is this: Research focused on university operations can lead to identification of areas needing attention. An open and distance learning institution committed to continuing improvement can thus benefit from such analysis. Each box in the flowchart constitutes a recommendation. All recommendations contained in this diagram have as their aim the improvement of the institution’s operation and thus increased probability of successful student completion. Obviously, it would be both impractical and impossible for the chief administrative officer of an institution to seek simultaneous improvement on all of the fronts depicted in Figure 1. Prioritisation and delegation are necessary. The assumption is that diffused responsibility for these tasks will allow for...
simultaneous and proactive measures to resolve the conditions implicated in Figure 1. Ongoing research would need to be conducted to monitor and evaluate the progress being made. Certainly here is a role for both institutional and mission critical research.

Summary and Conclusion

The social mission implied by the term open and distance learning reflects a commitment to reaching out to individuals and groups in our respective societies that otherwise would not be able to benefit from postsecondary education. Providing access is only the first step. If access is to be equitable, once they are admitted, socio-economically and educationally disadvantaged students require different forms of learning assistance. If open and distance learning institutions are to uphold their commitment to pursue the value of equitable access, continuous quality improvement must be part and parcel of everything they do. Quality, like excellence, is not a destination as much as it is a never-ending journey. Both institutional and mission critical research, are essential if open and distance learning institutions are advance on that journey.

References


Introduction

It is a pleasure to be with you. I begin by congratulating the Open University of Hong Kong in general, and CRIDALA in particular, for the tremendous contribution they are making to the practice of open and distance learning around the world. I have been privileged to serve on the Council of OUHK on two occasions. The first was in the late 1980s. It was then called the Hong Kong Open Learning Institute and I well remember when it published its first prospectus in 1989. The people of Hong Kong queued up around the block to get hold of copies and we realised that we might have a success on our hands.

My second period of service as a Council member was in the late 1990s. The highlight of that time was the achievement of full university status. In one of the last acts of the British colonial administration, the Hong Kong Open Learning Institute became the Open University of Hong Kong. It was a proud moment. No institution of higher education in Hong Kong had ever won university status so quickly, which is a tremendous tribute to the staff and students of OUHK and to its three presidents, Professors Swift, Dhanarajan and Tam.

There are two aspects of this success that are especially striking. The first is that OUHK has had to develop quickly to the point where it supports its operations from the fee income that it collects. The government has provided funds for capital expenditure but now contributes little to the recurrent budget.

Against that background the second striking aspect of OUHK’s success makes it unique. It has made a commitment to develop research as an essential part of its academic activity. CRIDALA is one expression of that role. I congratulate Professor Jegede on what he and CRIDALA have achieved in a short time and I commend him for his personal commitment to helping restart the Open University in his native Nigeria.

Its financial structure imposes a daily discipline on OUHK in the present and research activity symbolises its academic aspirations for the future. This combination of operational effectiveness and intellectual ambition has allowed OUHK and its staff to carry away many international prizes for excellence in the last few years. This conference is another manifestation of the world-class status of the Open University of Hong Kong.

The title of my contribution is simply Why Research Distance Learning? I was originally scheduled to give this address at the beginning of the conference but my arrival was delayed by a meeting of the Ministers of Education of the
Nordic countries in Oslo earlier this week. However, I have decided to stick to this title even though my remarks now have a retrospective rather than a prospective role. There is never a bad time to ask basic questions.

My talk falls naturally into two parts. First, I shall suggest three answers to the question in my title, why research distance learning. Second, I shall suggest three areas where, in my view, research is particularly important.

Why research distance learning?

My three reasons why we should research distance learning all begin with the letter E. The first E stands for evidence, which we as academics should seek out and respect. The second E stands for expectations, which the development of distance learning has created. The third E stands for environment, which is changing. I shall say a word about each, starting with evidence.

Those of us who work in universities have made a personal commitment to the academic mode of thinking. This is an approach that weighs the evidence, if necessary conducting experiments to gain more evidence, and tries to form hypotheses about the way the world works that have general application. Usually the formulation of hypotheses allows us to conduct further experiments in order to test them. This is the basis of the research activity of universities, including OUHK.

It is true, sadly, that in the past universities have rarely applied the academic mode of thinking to their teaching activities. This is odd, because higher education is now a rather large economic sector in most countries. Other economic sectors of similar size would take it for granted that their activities should be illuminated by ongoing research. Those of us involved in distance learning have the chance to change that embarrassing state of affairs and we should take it. The basis of university life is the academic dogma that knowledge is important. We must be true to our calling and increase the knowledge available about distance learning.

This brings us to the second reason for researching distance learning. I refer to the great expectations that it has inspired. Politicians, businesspeople and increasingly the general public, have the idea that distance learning can change radically the face of education, especially higher education. We have a duty to let them know whether or not these expectations are grounded in reality. Those who apply technology to cars, computers, medicine or media, usually have clear aims. They want to make things better, faster, safer or more user-friendly.

I like to express the analogous aims for education in what I call the eternal triangle made up of the vectors of access, quality and cost. A year at UNESCO has reinforced my view that, to be useful in education, technology must help us increase access, improve quality or reduce cost. If it can do all of these at the same time then it is truly a helpful development – even a revolutionary one. We should research distance learning to see whether it can reshape the eternal triangle. I shall come back to that in a minute.

The third reason for researching distance learning is the environment in which it takes place. It is a changing environment. Conventional classroom education has used the same approach for decades, even centuries. It has
evolved a relatively stable set of methods and there are no irresistible pressures to change them. Distance learning, on the other hand, cannot avoid change.

This is not just because new technologies become available, but also because old technologies become unavailable. Early in my career, when I was at Quebec’s Télé-université, we used to send 33rpm vinyl records to students with the audio material for the course. You could not do that today. Today many distance-learning institutions send out videocassettes. Before long those too will be obsolete. Since no technology is an exact replacement for the one it supplants we must at least research our use of technologies. Once you start doing that you will find that the study of distance learning is rather like overcooked spaghetti; once you pull on one strand you find you are engaged with the whole tangled mass.

Those then, are three reasons for researching distance learning. Where do they lead us in practical terms? What are some of the priorities for research? Since time is limited let me identify three broad areas of importance. Just as the letter E linked my three reasons for doing research, the letter C links the three topics that I see as priorities. The first C is for concepts of media use. We can conceive of the use of particular media in different ways. How do these different designs impact on the learners who use those media?

The second C is for costs. Most people prefer to avoid talking about costs. At the end of the day, however, it is by reducing costs that technologies cause revolutions. We must base our assertions about the cost structures of distance learning on more than wishful thinking.

My third C is really two Cs – collaboration and combination. Distance learning has spawned many collaborative ventures between institutions. Which models of collaboration work best and why? This is closely linked to the trend to combine distance learning and traditional methods, with information and communication technology providing the bridge between the two. Here again, what works best and why? In particular, how do these collaborations and combinations impact on the teaching staff?

It is not my purpose here to set out a research-funding proposal in each of these areas, but let me make a few comments about each, starting with research on concepts of media use and on the way that learners actually use media. The pioneer of research on the learner use of media was Tony Bates, who is now at the University of British Columbia but began a programme of research on learning media in distance education in the early days of the Open University. The research on media use at the UK Open University – and in other open universities – stands out, in both quality and relevance, against the mass of trivial and badly conceived research that has been spawned as distance learning has become fashionable in conventional campus institutions.

This research is badly conceived because its main purpose seems to be to compare distance learning to classroom teaching. Indeed, it is usually worse than that. It seeks to compare instruction through a single medium, such as the Web or teleconferencing, with classroom instruction. There are two main problems with that.
The first is why should classroom teaching be a benchmark when everyone knows from experience that learning in classrooms is not particularly effective nor efficient? The second is that any sensible teaching and learning system, including the classroom, is a complex reality. The most visible medium in such systems, such as lecturing in a classroom, is only the tip of an iceberg that includes other activities, not least the homework done by individual students and the discussions that take place between students about that homework. Simply to compare the tips of two icebergs, to continue with that analogy, tells you little about the differences between the larger masses of ice below the waterline.

We need instead to study the way that learners use a particular medium within the context of all the other media and methods that make up that particular teaching and learning system. This must be done from the student’s point of view. Let me give two simple examples.

First, if students are told that a particular media component is included in the course for enrichment purposes and will not be the subject of questions in the examination, then many students will rate it as unimportant no matter how brilliant its producers think it is. Second, a television programme sent out as a videocassette or DVD is quite different from the same programme broadcast on air, simply because the student can readily stop it, rewind it and replay it. I could give many more examples but you get the idea. Start from where the student is.

My second priority topic for research is costs. This is a complex area where, once again, people associated with open universities, such as Tony Bates and Greville Rumble, have done much of the best work. However, researching this area does have the advantage that you have to break away from the standard comparisons with classroom instruction. That is because most campus universities have no idea what their cost structures are at a detailed level.

My own preference is to study the total and marginal costs of different elements of distance learning systems in relation to student numbers and to try to compare this with the learning effectiveness of each medium. This is easier said than done, but it does have the virtue of showing you quite quickly if the medium in which you propose to make an investment is either not scaleable or not valued by students. I believe that the distinction between independent and interactive learning activities that I made twenty-five years ago still provides a useful lens through which to look at the costs and effectiveness of different media.

Researching costs may be complicated but my final topic, namely the impact on staff of collaborative ventures and of combinations of distance learning and traditional teaching, is a nightmare. This is partly because each example tends to be sui generis and partly because it takes us straight into the areas of institutional and inter-institutional politics. Nevertheless, it is very important that we study and document the way in which Internet technology is blurring the line between distance learning and traditional classroom teaching.

It is particularly important that we analyse the impact of these developments on the academic staff. Several scholars, notably David Noble in Canada and
Carole Fungaroli in the United States, have boosted their careers by becoming standard bearers for hostility towards distance education and online learning. This is good and we should welcome the debate they are generating. We should welcome it – but we should also bring solid evidence to the debate in order to take it forward. That requires research.

Conclusion

I will end these brief comments there. As scholars engaged in researching distance learning you are making an important contribution to the renewal of education in general and higher education in particular. I have suggested three reasons that should motivate your work. First, expressing the academic ideal in the search for evidence. Second, bringing realism to the great expectations people have for distance learning. Third, helping the practitioners of distance learning react intelligently to a changing technological environment.

In this spirit I have indicated three important topics among the many that you could choose. First, studying how we conceive the use of media from the student’s perspective. Second, understanding the cost structures of distance learning more fully. Third, assessing the effect of the evolution of distance learning on staff as traditional and online methods become intertwined.

I hope those thoughts illuminate your own reflections and I wish you success in your important work.

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Distance Education Research: A Review of its Structure, Methodological Issues and Priority Areas

SANJAYA MISHRA

Indira Gandhi National Open University, New Delhi, India

Abstract: Research literature of a discipline depicts the culture, concern and priorities of its own. They contain specialised knowledge unique to the discipline and reflect the research practices and methods adopted by scholars in their pursuit of research and development. The discipline of distance education having emerged from the domain of educational research has now its unique characteristics. It has a number of professional and research journals for reporting of research literature. This paper makes an attempt to review the distance education research literature from the viewpoint of its structure, methodological concerns and priority areas. The review concludes that researchers in open and distance education are very much concerned over the importance of research, areas of research requiring priority, ways to accomplish research, methodological rigour, ethical issues and research reporting.

Introduction

For a discipline to be recognised as mature, research in its core domain of knowledge is highly necessary. The results of research are reported in periodicals and research monographs, which later on gets assimilated into textbooks. Research literature of a discipline shows the culture of the discipline. They contain the specialised knowledge and examples of research procedures that are unique to the discipline, by means of which the heritage of the discipline is maintained (Robbins, 1973). Distance Education is "a distinct field of educational research and training within the discipline of education" having links to other fields within the discipline of education (Keegan, 1990: 7). The related fields are educational technology, adult education, and the study of non-traditional/open system. On the other hand Holmberg (1996) while discussing the character and scope of distance education in the 1990s, confirms his earlier (1986) view of "distance education as a discipline in its own right" (p.20) based on the growth of research activities and university teaching of the subject. The 1980s witnessed an exponential growth of literature on distance education as a result of research in sub-fields like course design, economics of distance education, student support services, and media in distance education, and due to the emergence of a number of academic

ISSN 0971-599X. Printed in India. © Indira Gandhi National Open University
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journals (Keegan, 1990: 9). By 1994 there were 16 periodicals and 20 newsletters catering to the need of the specialists in this discipline (Harry, 1994).

Research in distance education is concerned with two important activities, viz. (i) to undertake and report research activities in distance education and (ii) to review such activities to examine the direction in which distance education is progressing" (Panda, 1992: 310). In recent years there has been an increase on the importance of methodology and approach to research on distance education (Coldewey, 1988). Whatever may be the approach, research should culminate in and lead towards development of a cohesive theory of distance education. Keegan (1990) states:

"A theory is something what eventually can be reduced to a phrase, a sentence or a paragraph and which, while subsuming all the practical research, gives the foundation on which structures of need, purpose and administration can be erected. A firmly based theory of distance education will be one which can provide the touchstone against which decision political, financial, educational, and social - can be taken with confidence. Such a theoretical basis would replace the ad-hoc way of responding to 'crisis' situations which normally characterize this field of education" (p.5).

Whereas, according to Moore (1985):

"Theory is simply an organisational statement of what is known, a map of the field, which has two practical uses. First, it sets out in the minimum space and in the simplest way the result of research, therefore giving practitioners a guide for practice without their having to analyse all the data for themselves. Second, as far as researchers are concerned, they help to clarify the blank spaces on the maps, so it both suggests what needs investigation and summarises what has been discovered. (p.51).

Here an attempt has been made to review the various issues and concerns in the field of Distance Education as depicted in its research literature.

Distance Education Research

Though Distance Education is more than 150 years old and has passed through various evolutionary developmental phases since the shorthand lesson of Isaac Pitman through ‘penny post’, research in distance education is relatively recent in origin. Systematic research in distance education started in late 1950s. The first theoretical work was published in 1959 by the East German scholar Joannes Riechert of Freiburg with the title “Write, Teach and Learn” in German language (Keegan, 1990: 51). About the same time in 1960, Borje Holmberg from Sweden published his international treatise on the subject, entitled “On the methods of teaching by correspondences.” However most of the work of 1960s and early 1970s came from a group from German Institute of Distance Education (DIFF) to whom Keegan refers as “The Tubingen Group” comprising Rudolf Manfred Delling, Otto Peters, G. Dohmen, K. Graft and K-H. Rebel. The establishment of Open University (UK) in 1969 is a major milestone for distance education in general and researches in distance education in particular, especially because of its concern for research. The 1970s saw the creation of a number of distance education institutions (Kaye and Rumble, 1981; Holmberg; 1986). As a result of which research in the area progressed, and thus it was not surprising to see the observation of Ljosa (1980) that the bulk of research in distance education derives from three sources: strong
institutions with large research units, scattered individuals with a special interest in the field, and specially funded major projects. In 1985 Moore reviewed the distance education research literature of the last twenty years and commented "the condition of research in distance education is about what might be expected at this early stage in the growth of a new field of education" (p.36). Whereas, five years later Coldewey (1990) stated that distance education research is not planned, consolidated and/or reported in a systematic manner. However, researchers have now started emphasising on the ethical issues of distance education research, especially because, distance education is a social activity and much research depends on human beings as sources of data (Evans and Jakupec, 1996). A review of Distance Education research could be divided into three broad areas, viz. the structure of distance education research literature; methodological issues; and areas of research priority.

Structure of Distance Education Research Literature

Structure of a discipline forms the backbone of research for identifying gaps and areas of priority. According to Saba and Twitchell (1988) published research in the field of distance education covers two broad categories: conceptual studies and case studies. Literature of conceptual type, according to them has at least served three purposes: "offered definition for the field, provided conceptual models for various systems, and presented current and future trends in the field" (p.9).

It was Holmberg (1985), who first attempted to develop a classificatory base of distance education literature in thirteen sub-divisions in the 2nd edition of his Status and Trends of Distance Education. The sub-divisions identified for grouping literature in the bibliography part of this book includes the following:

1. Survey of distance education and of research into distance education
2. The characteristics, rationale and philosophy of distance education; theoretical approaches
3. Course development in general
   3.1 Curriculum and objectives of study
   3.2 Media *
   3.3 Structure and typography of printed courses
4. Two-way communication
5. Distant students and their situations
6. Organisation and administration
7. Supervised correspondence study
8. Evaluation and economics of distance education
9. Application of case studies
10. History of distance education
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11. Works of general aspects of education having special relevance to distance education
12. Periodicals concerned with distance education

However, Holmberg (1986a) specifically described the structure of distance education discipline to consists of the following areas:

- Philosophy and theory of distance education;
- Distance students, their milieu, conditions, and study motivations;
- Subject matter presentation;
- Communication and interaction between students and their supporting organisation (tutors, counsellors, administrators, other students);
- Administration and organisation;
- Economics;
- Systems (comparative distance education, typologies, evaluation, etc.);
- History of distance education.

Gupta and Renu Arun (1986) in an analysis of Indian writings on distance education categorised literature of the field in the following headings:

- Distance education: concepts, principles and perspectives;
- Distance education in Indian states: problems and future;
- Distance education in universities: open university;
- Distance education in different developing countries;
- Distance education: Impact, effectiveness and research;
- Mass media and new technologies in distance education;
- Course materials in distance education, production, training, etc.;
- Student assessment, evaluation, response sheets, support services, contact programmes, teaching/learning situations;
- Enrollments and dropouts in distance education;
- Management and administration of distance education;
- Distance education and rural / technical / vocational / educational professional training.

Calvert (1986) provided a conceptual framework for distance education research (Table 1), but discussed the Canadian distance education research literature under the following headings: Students and curricula, learning at a distance, teachers at a distance,
supplementary support services, technology for instruction, other issues of computer technology, institutional policies and structure, relationships among institutions, and economics.

Table 1: Conceptual framework for distance education research

<table>
<thead>
<tr>
<th>Input Variables</th>
<th>Process Variables</th>
<th>Outcome Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>Development</td>
<td>Student</td>
</tr>
<tr>
<td>educational background</td>
<td>curriculum</td>
<td>enrolment</td>
</tr>
<tr>
<td>perceived needs</td>
<td>development model</td>
<td>academic progress</td>
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<tr>
<td>motivation</td>
<td>design of instruction</td>
<td>academic</td>
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<tr>
<td>learning styles</td>
<td>media</td>
<td>performance</td>
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<tr>
<td>study environments</td>
<td>course workload</td>
<td>use of materials and services</td>
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<td></td>
<td>pricing</td>
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<td></td>
<td>production procedures</td>
<td>dropsouts</td>
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<tr>
<td>System</td>
<td>Delivery</td>
<td>System</td>
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<tr>
<td>national requirement</td>
<td>recruitment methods</td>
<td>development</td>
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<tr>
<td>institutional policy</td>
<td>academic support</td>
<td>efficiency</td>
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<tr>
<td>financial resources</td>
<td>formal feedback</td>
<td>cost</td>
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<tr>
<td>technical resources</td>
<td></td>
<td>effectiveness</td>
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<td>human resources</td>
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<td>acceptance in the system</td>
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<td>geography</td>
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Source: Calvert (1996)

Panda (1992) also presented a similar conceptual framework, like that of Calvert, for distance educational research (Table 2) on the model of system philosophy. However, while grouping the distance education research literature in India, he identified nine areas as follows:

- Concept, Growth and Development
- Curriculum/Course Planning and Development
- Instruction/Teaching
- Media and Technology
- Learners and Learning
- Institutional Policy and Management
- Economics
- Evaluation/Programme Evaluation
- Staff Development
### Table 2: System perspective of distance education

<table>
<thead>
<tr>
<th>Input</th>
<th>Process</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Programme planning</td>
<td>* Two-way communication</td>
<td>* Students’ achievement</td>
</tr>
<tr>
<td>* Objectives as inputs</td>
<td>(real and simulated)</td>
<td>(grades/marks), and other skills</td>
</tr>
<tr>
<td>* Staff development</td>
<td>* Student’s interaction with materials (learning style, strategy, pace,</td>
<td>* Student satisfaction</td>
</tr>
<tr>
<td>(material development, assessment and evaluation,</td>
<td>etc.)</td>
<td></td>
</tr>
<tr>
<td>tutoring and counselling administration, management, monitoring *)</td>
<td>* Evaluation process</td>
<td>* Student’s relevance in the job market</td>
</tr>
<tr>
<td>* Course (print, audio video etc.) *)</td>
<td>* Student support services</td>
<td>* Student employment and promotion</td>
</tr>
<tr>
<td>* Student(s)</td>
<td>* Time</td>
<td>* Relevance of staff development and acquired skills as further input</td>
</tr>
<tr>
<td>* Infrastructure</td>
<td>* Financing and budgeting</td>
<td>* System efficiency as future input</td>
</tr>
<tr>
<td>* Time</td>
<td></td>
<td>* Relevance and effectiveness</td>
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<tr>
<td>* Financing and budgeting</td>
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<td>of self-instructional materials</td>
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<td>as future inputs</td>
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<td>* Effectiveness and efficiency</td>
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<td></td>
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<td>of the entire system</td>
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<tr>
<td></td>
<td></td>
<td>* Effectiveness and efficiency</td>
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<td></td>
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<td>of sub-systems**</td>
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* themselves are processes at ‘input’ stage; ** also a part of ‘process’


Slurrick and Howard (1989) analysed 33 full-length papers submitted to *Journal of Distance Education* over a period of twelve months and grouped them into the following eight topics:

1. Electronic communication
2. Evaluation of distance education programs and materials
3. Learner independence
4. Specific programmes
5. Distance Education - self definition
6. Innovations
7. Counselling and support systems
8. Reviews of the literature

Scriven (1991) reviewed the content and contributions that appeared in the *Journal of Distance Education* from volume 1 to 10 and grouped the major 109 articles into the
following topics:

- Students and their characteristics
- Specific programmes and courses
- Telecommunications and media
- Specific countries - practices and procedures
- Theory
- Course design and development
- Economics and management
- Counselling and student support
- Tutors, staff development, staff involvement
- Unclassified

Jegede (1994) in a different context, in order to identify distance education research priorities in Australia, developed a questionnaire, which was validated by a panel of judges selected from a cross-section of experts in distance education, research methodology, communication and data analysis; contains twenty two broad groupings of research areas. They are as follows:

1. Theory and philosophy
2. Learner characteristics
3. Equity and access (compensating for disadvantage)
4. Design and development of study materials
5. Instructional and communication technology
6. Teleteaching and learning
7. Management and planning
8. Student support services
9. Development of students study skills
10. Systems for the provision of feedback to students
11. Interactive multimedia
12. Discipline based context
13. Cognition and metacognition
14. Cost benefit analysis
15. Relationship between open learning and distance education
16. Industrial and business training context
17. Research methodology
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18. Evaluation
19. Expert learning systems
20. Role of distance education in national development
21. Teacher education
22. Professional development of distance educators

Most recently Calvert (1995) analysed 298 articles published in four leading journals of distance education: American Journal of Distance Education (71), Distance Education (74), Journal of Distance Education (40) and Open Learning (113), from 1990 to 1993 and identified the following topics: professional education, technology, evaluation, academic staff and professional development, student factors, educational design, research and theory, administration and management, interaction, quality, gender, student support, independence, collaboration and references to location (programme, institution, systems and country).

Methodological Issues in Distance Education Research

Choice of right research problem, suitable design and reporting are very important issues for meaningful research results. These issues also depend on who is conducting the research, as Calvert (1984) puts it:

"Distance educators, the one who know their system well usually are newcomers to the field and have a job in another discipline, even when they do have solid research skills, they must 're-tool' for this new research area. Furthermore, the emphasis in distance education system is in doing, not contemplating, most people in the field are administrators carrying a heavy workload. When special research units are established, they generally serve administration and focus on practical day-to-day issues" (p. 1).

Morgan (1984) reviewed the research literature on distance education that used "qualitative research" design and concluded that this approach can be fruitful for development of distance education, especially for generalisation, not in statistical sense, but in a phenomenological sense. Moore (1985) after having reviewed the research literature of last twenty years admitted that there are "only a handful of good projects which produce reliable, generalisable and useful information" (p.36) and also there are "a massive volume of amateur, unsystematic and badly designed research producing information of very little value" (p.36). He was also concerned about the naive empiricism leading to one-off status reports and programme descriptions. Panda (1992) having analysed the distance education research literature in India also expressed concern about this issue and emphasised, "Most of the studies are either descriptive status surveys or experimental studies with poor methodological footing" (p.322).

According to Minnis (1985) research in distance education can be summarised as follows:

1. "most research remains overwhelmingly descriptive. The focus is narrow with emphasis on particular institutional problems (i.e. attrition, the non-start problem, comparison of teaching methods, etc.);
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1. as a consequence of its problem-solving orientation, research reflects an ahistorical and/or atheoretical bias, ignoring the need for theory construction;

2. research tends to be context-specific, that is, few generalizations can be made beyond the specific population or sample studies;

3. research lacks meaningful cross-cultural or comparative perspectives;

4. the vast majority of research is heavily dependent on psychological paradigms which, despite the strengths associated with such paradigms, tend to reduce the problems of distance education to ones which are amenable to the manipulation of psychological variables only” (p. 191).

Therefore, Minnis recommended three methods — ethnography, case studies and grounded theory, as alternative research approaches designed to understand distance education phenomena to achieve the theoretical and conceptual depth of distance education.

Saba and Twitchell (1988) identified the use of different methods of enquiry for various functions of a distance education system and proposed ‘system modelling approach’. The methods of inquiry, identified by them are as follows:

- “descriptive analysis used to show how distance education systems are organised and governed,
- cost-benefit analysis is used to study financing and budgeting of systems,
- survey methods are used to study utilization patterns and user attitudes towards the system, and
- experimental research methods are used to study learners and to measure learning outcomes” (p.10).

Moore (1985) analysed the studies reported by Childs (1965, 1969) and found that two-thirds of the research works were of survey and descriptive nature, and no less than one-third were experimental. Whereas on comparison to this he found the current research in weak methodological footing. Suens and Stevens (1993) reviewed research literature in distance education and found common analytic problems and errors such as significance testing, reliability and validity, error rate and reporting practices. In this respect Coldewey (1988) advised that distance educational researchers should understand issues relating to sampling, the concepts of statistical power, meaningful versus statistical significance, internal versus external validity and meta-analysis.

With respect to reporting, Moore (1985) emphasised:

“if previous research was consulted - i.e., if there was a theoretical underpinning for the research - not only would there be better chance of an investigation which was not merely repetitive of previous work, but a new contribution to the theory might follow” (p.36).

In a recent paper Calvert (1995) reported, of the 298 articles analysed, only 17 contained no references, indicating a trend towards theoretical underpinning.

In a review of Indian writings on distance education Gupta and Renu Arun (1986) found that the contributors are distance educators in the universities and research efforts
in the domain of distance education have remained fragmentary and isolated. Interestingly a significant number of contributions they analysed were addresses to conferences, workshops, etc. which hardly can be called research. Mitchell (1991) in his editorial to Distance Education has identified another dimension of accessibility of source literature. He has gone to an extent of criticising the papers published in the same issue of the journal, as an illustration of the 'ordinariness' of research publications in Distance Education.

Mishra (1997) critically analysed 361 papers published in four leading journals of Distance Education, i.e. American Journal of Distance Education, Distance Education, Indian Journal of Open Learning, and Open Learning, and found that 47.64 per cent of papers were descriptive in nature. Survey method (21.32%) formed the next favourable method for Distance Education research. Interestingly the use of experimental research method, evaluation and qualitative methodology were relatively less used and concluded that "the subject has to go a long way in inculcating methodological rigour into research activities" (p.43). In terms of reference to previous research, only 9.14 per cent papers had no reference indicating a positive trend towards theoretical underpinning.

Areas of Research Priority in Distance Education

Most of the Distance Education Institutions all over the world have been established to provide education to a growing population of adult learners at a lower cost. In order to achieve the objectives, innovations based on empirical evidence need to be implemented. Marland (1989) sets three pressing reasons why distance education research should receive priority:

- 'Distance learners constitute a sub-group of tertiary students whose instructional programmes and materials learning, contexts and problems differ markedly from those of their on-campus peers. Past experience has shown that it is imprudent to extrapolate from one setting to another.

- Since the 1970s there has been a dramatic worldwide upswing in the numbers of distance learners and of institutions offering distance learning programmes.

- Very little research into distance teaching and learning has been conducted that provides a basis for the evaluation of traditional assumptions and practices in the design and conduct of distance education programmes" (p. 178).

According to Coldewey (1988) there is room for all kinds of research, but more basic research into human learning and motivation; especially in the context of adult development, individualised study, learning from prose, the effect of technology on human behaviour, and the interaction between adult learning and adult lifestyle, is needed. Similarly Marland (1989) while discussing a paradigm for research on learning identified six main areas that invite research attention:

1. "the nature of students' espoused theories for learning from text including, for example, their goals, motives, beliefs, conceptions of learning and the learner's role, and study approaches - in short their educational and study orientations.

2. the nature of students' theories - in-use when learning from text, that is, their actual study approaches and styles; perceptions of text, assessment requirements, and lectures; and cognitive processing during study.
3. congruency (or lack of it) between espoused theory and theory-in-use.

4. effects of contextual variables, such as study background, career and family commitments, study environment, work environment and collegial relationships, and subjects being studied, on both espoused and in-use theories and mediating processes.

5. effects of different textual formats on espoused and in-use theories and mediating processes, relationship between espoused and in-use theories and mediating processes on the one hand and learning outcomes on the other (p. 180).

Taylor (1989) with specific reference to South Asia has listed six areas on which research in distance education should be conducted. The areas are:

- factors affecting learning process of distance students;
- effectiveness of instructional strategies;
- cost-effectiveness of combinations of instructional media;
- evaluation of the usefulness of different distance education techniques in formal and non-formal educational context;
- economic impact of distance education and its role on national development;
- theoretical underpinning of distance education.

Panda (1992) after reviewing the research literature of distance education in Indian context, has listed five important broad research areas needing urgent attention, which he considers are not though comprehensive as such. The areas are:

- Curriculum planning and development, and developing a comprehensive model, with room for variations, within a given socio-cultural set up;
- Different modes of course development and testing their instructional components for wide implementation, including media-mix in different disciplines for optimum utilisation of media within a given budget;
- Instructional design-development-implementation, especially comparative studies on instructional strategies;
- Studies on distance learners and how they learn; and
- The approaches to co-ordination, information dissemination and exchange, and quality control within the process of distance education objectives.

In a review of research on distance education in Norway, Rekkedal (1993) has identified the following future research needs:

- Theory studies with relevance for distance education
- National policies and effects on distance education development and market research
- Different organisational forms and forms of co-operation
- Counselling and guidance
- Studies of the educational processes, learning media and two way communication
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- Teacher roles-interests and attitude
- Efficiency and effect studies
- Different media-uses and applications
- The student’s actual use of different media and interaction possibilities
- Intensive studies on methods of learning including direct observation.

Jegede (1994) reported in an empirical study of the opinion of distance educators and practitioners in Australia that the respondents believed more research is needed in virtually all areas. However, the areas that attracted seventy percent and above agreement amongst respondents as requiring concentration of research efforts are: learner characteristics, design and development of study materials, instructional and communication technologies, student support services, development of students study skills, systems for the provision of feedback to students, and evaluation. The areas identified in this study as requiring priority research attention are: instructional and communication technology, industrial and business training context, role of distance education in national development, student support services, evaluation, equity and access, design and development of study materials, and interactive multimedia.

The most comprehensive listing of research areas has been reported by Moore (1995) in his editorial to American Journal of Distance Education based on the proceedings of the “Distance Education Research Symposium: A Research Agenda” (1995). The areas identified are as follows:

Research on policy and administration

- The legitimacy of distance education in professional lives of faculty and administrators and the attendant change process necessary to provide distance education with “value added” for these professionals
- Finance and financial models-efficiency of investments in distance education and its measurement
- Changing the faculty culture for encouraging their participation in distance education
- Access, equity and social impact of programmes in relation to market driven approach, socio-economic impact and consumer protection policies
- Change models for applying research results to practice
- Effect of work styles and life styles on distance education and vice-versa, for administrators and faculty
- Evaluation of administrative practices in relation to socio-political issues and question of relevance.

Research on instruction

- Is frequency of interaction meaningful?
- Is understanding increased when interaction is present?
• Is there an influence on learner satisfaction?
• Is interaction more important for certain types of learners?
• Is there an optimum form/type of interaction in particular settings?
• What is the effect on retention?
• Are there changing patterns/levels of interaction over a course?
• What is the interplay between public and private interaction?
• What is the interplay between types of interaction occurring simultaneously?
• What do students like? want? need?
• How is cost effectiveness and learning effectiveness determined?

Research on course design
• Affective component in learning: recognising that course design can be both affective and cognitive
• Technology application in various designs
• Educational designs from instruction point of view
• Educational designs from the learners point of view, with reference to information overload
• Designing for collaborative learning
• Use of course design for learners to reflect
• Factors influencing course design efficacy
• Dimensions of learner-centred designs
• Changes from linear to multivariate models of course designs

Research on learners and learning
• Are we simply looking for a satisfied learner?
• Are we looking at who can do well on a course test?
• Are we starting to broaden our outlook and evaluate long-term, post-course results?
• Are we looking at outcomes where students have gained cognitive skills or may have acquired a broader level of learning strategies that they did not have before?
• How do we assess the kind of process that help students engage in “meaning making”?
• How various media contribute to learner outcomes?
• The extent to which research looks at learning in its total context.
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Conclusion

To strengthen research activities, while expressing his predicament over distance education research Moore (198) suggests an understanding of the life cycle of distance education. According to him, distance education:

"is in a stage of childhood, past infancy but not yet grown up. In infancy there was a dominant emphasis on the immediate gratification of the needs of practitioners - i.e. researchers must help them solve their everyday problems. Then comes an emphasis on description - on telling the world what we are like through studies of participation and individual program experiences. Adolescence comes with the formulation of a body of theory, which holds together in an explanatory framework the previously disparate pieces of the field. We then encounter a mature concern for testing and questioning and refining our theory, the frequency of experimental research increases as the theoretical base is built up" (p.43).

Panda (1995) has made a strong case for 'institutional research' and elaborates:

"The controversy between systemic research and discipline-based research in distance teaching institutions notwithstanding, the utilisation potential of research would be enhanced once it is institutionally sponsored. Though it does not delimit a distance teacher to undertake one’s own private research, it is the same academic who would eventually work for the institution on the institutional project(s). Given the ground reality in the sector of higher education in general and distance teaching institutions in particular, it is the understanding and visionary leadership with strong commitment to the system which can initiate and help the growth of institutional distance education research as an ongoing process and as a built-in mechanism within the framework of distance education institution network" (p.482).

Koul (1993) has emphasised the role of collaboration in research and development in distance education and provided four reasons for collaborative efforts:

- Most of the institutions face similar difficulties especially financial resource crunch, and collaboration would help save funds, human energy and time.
- Collaboration will counteract the tradition of isolated research and increase professional communication across countries.
- Collaborative research shall be a major mechanism for globalisation and international perspectives in relation to mobility of students, credit transfer, adaptation and adoption of course, etc.
- In view of the modern technological changes, institutions need to share experiences and ways to imbibe change for innovative and effective application of technology for developmental purposes.

Recently in an article Evans and Jakupec (1996) expressed concern over ethical issues in distance education research and recommended two principles that researchers in this area should follow:

"(i) research in open and distance education should not expose individuals to risks of or cause unjustified political, personal, economic, physical, emotional, moral or psychological harm; (ii) researchers in open and distance education ought not to undertake research which violates principles of free informed consent" (p.91).
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Thus, from this brief review of literature, it can be concluded that researchers in open and distance education are very much concerned over the importance of research, areas of research requiring priority, ways to accomplish research, methodological rigour, ethical issues, and research reporting. Though there have been not much contradiction on the basic structure of the discipline of Distance Education, it is essential to accept a comprehensive and cohesive structure internationally to provide a strong foundation to the discipline. International Centres/Organisations like COL, ICDE, and ICDL should work out a classificatory base that would help organisation of research literature, apart from indicating research gaps to prospective researchers in the discipline.

Notwithstanding methodological concerns on research in Distance Education, the researchers need to further re-tool themselves so as to match their approaches to the ethos of the discipline. The highest percentage (47.64%) of descriptive studies reported in a recent analysis of research literature (Mishra, 1997) emphatically calls for a review of editorial policies and decisions to inculcate rigour in Distance Education research. However, the research priorities have been put to practice. But, the future research emphasis in Distance Education should in fact be on development of theory, institutional research, and international collaboration for over all development of the system in general.

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[Mr. Sanjaya Mishra is Lecturer in Distance Education at Staff Training and Research Institute of Distance Education. Correspondence: STRIDE, IGNOU, Maidan Garhi, New Delhi 110 068, India. e-mail: sanjayamishra@hotmail.com]
Mentoring, Incentives and Rewards in Research as Professional Development

Santosh Panda
Indira Gandhi National Open University

A keynote for the Conference on Research in Distance & Adult Learning in Asia, Open University of Hong Kong, June 21-24, 2000.

Introduction

The paper throws open some issues for discussion (rather than any prescription or critique on issues), and colleagues from this area and from distance education in general could contribute their views to enrich the discussion further, and set an agenda for collaborative implementation and follow-up of a system of distance education research for professional development. The paper raises research questions as well as professional-managerial questions on research mentoring, and promotion of research through supports including incentives which are crucial for research in general, and research in adult and distance education in particular. This also needs to be examined in a context where exchange, support and collaboration has been more possible through information and communication technologies (ICTs). Also, in the process, some of the training issues relating to research as professional development have been highlighted. It may be underlined that throughout the paper, distance education denotes contexts of open universities, distance teaching institutions, as also distance education in dual-mode institutions.

Research as Professional Development

At the special lecture to the ICDE Vienna delegates in 1999, Otto Peters had rightly remarked that every university needs to be an open university in several aspects, and that they should be student oriented, practice oriented, and future oriented. Further, he remarked, On the whole, the university of the future will have to be the result of a fundamental process of transformation in which it changes into a university which mainly enables self-studying in all its forms oriented towards the research process, supports this and in the end makes it into the foundation of its curricula and teaching (Peters, 1999). What Peters said may be read as futuristic; but it holds good for any university - conventional or open. While commenting on this very aspect, Evans seemed to me more straightforward: Open universities need to take the issue of research seriously if they wish to be at the forefront of higher education nationally and internationally, and if they wish to be seen as universities (Evans, 2000 : 2). The single-mode open universities need to undertake significant research activities, otherwise they may be considered inferior to the real universities on which they heavily depend upon. To extend the argument further, whether a research discipline of distance education as noted by Holmberg (1987) has emerged or not, it is imperative that all activities and practices within distance education should have sound empirical base through research (Moore, 1988; Jegede, 1991).
As we shall argue later, research in distance education should not be restricted to a few, rather it should be undertaken by all teaching and professional staff as part of their reflective practice through critical reflection (Evans and Nation, 1989). If a close relationship between research and practice needs to be established (Calvert, 1989), those who do these cannot be separated. Even today, research is being undertaken by those who need not implement it, and that research outcome is generally shelved to be preserved rather than utilised for informed decision-making and improvement of practice. Besides this, which may be termed as institutional research, it is imperative to undertake basic research within the field of open and distance learning to help it grow and be a co-partner to contemporary emerging and established disciplines, especially in social sciences.

While pleading for action research as a tool for professional development, Passi (1999) pointed out that this is the best form of professional development because they can employ indigenous methodologies, identify self-generated resources, and find local solutions (p.2). This also develops personal knowledge base, reasonable level of expertise, atmosphere of self-reliance, and invigorates the entire educational environment. Besides, there are other forms or types of research which need to be considered as worth undertaking. Though it is beyond the scope of this paper to engage in a detailed discussion on this, a brief mention is worth the task since it has implications for mentoring of research and incentive schemes. There has been considerable amount of debate in distance teaching institutions (DTIs) and open universities (OUs) regarding focus of research effort either on one's own discipline or the distance education system and practices. This also brings into focus the nature of research activities, as also institutional research policy. Usually, the argument put forward in the DTIs is that the academics need to be in touch with respective mainstream discipline and contribute to its knowledge base, as also that they do not have research skills to investigate into the pedagogic and operational aspects of their discipline distance teaching, which is seen as more educational. The argument seems to be true in its own right. The argument seems more attractive when one finds that even in conventional mainstream universities, all the teachers are not engaged in research, and, more so, on research in educational pedagogy. Simply, doing a doctorate in one’s discipline entitles one to teach that discipline. But then, the nature of teaching and the role of teachers has undergone dramatic changes, and that continuing professional development is being visualised not only as a prerequisite to tenured promotion, but more as development of skills of learning to learn and lifelong learning.

Has it happened or does it apply to research, and research in open distance education? Traditionally, in conventional universities, research is confined to doctoral work and individual/group projects with external funding support. In especially doctoral work, there is a strong disparity of knowledge between the research supervisor and the research student, which characterises this kind of investigation; and that there is an intense polarisation of knowledge in favour of the supervisor (who eventually knows more), and the investigation is largely linear (as guided by the supervisor). While this disparity and polarisation characterise doctoral work, this has led to a superior status enjoyed by the supervisor (Misra, 2000). In open distance education, by the very nature of (team) work undertaken by a variety of functionaries, the disparity and polarisation turn towards collaborative
exploration as joint venturers and surrogate students, and multi-dimensional respectively; and the superior status enjoyed by the supervisor takes the form of multiple and multi-dimensional roles played by the teacher-researchers. Instead of linearity, the exploration becomes multi-dimensional, with multi-perspectives and creativity. In the process, therefore, while research is not confined to a few (that to teachers), the nature of research guidance and mentoring undergoes significant changes.

Before we get to discuss research mentoring, a few questions need to be addressed to:

- Does the institution have a research policy, and what is the nature of that research policy?
- What is the status of institutional and individual research: what sort of research, who does it, for whom, in which areas, with what intention and funding support?
- What are the result outlets/forms: institutional, individual course-related, individual projects, doctoral work, course research projects, routine evaluative research, a research course?
- Are there differences in pedagogic and operational aspects between discipline-based and DE system-based research?
- In what way and with what consequence, institutional and individual research be integrated/distinguished?
- What kind of research areas we need to give priority to?
- How can the everyday work of an academic be integrated with action and other kinds of research in DE? And, how much time/workload for research?

**Mentoring ‘Research in DE’**

Experience tells us that traditionally, in general, research has been largely linear with greater disparity between the supervisor and the student. In the distance education context also, research supervision has almost been the same; and for other forms of research mentioned above, supervision and guidance has been minimal, and some times non-existent, except that the teacher-researcher has to satisfy a few committees to obtain research grants. The age-old scheme of superior-subordinate hierarchy in research relationship is gradually vanishing. What is said by Sayles (1993) about government and business enterprises (that workers are being viewed as more desirable than before due to their multifunctional specialism, and that the management is also functioning in a more collaborative and interactive fashion than before) is also equally applicable to distance education situations (vis-a-vis research): that there is increasing multispecialisation, downsizing, collaborative decision making, and linking research to development.

Mentoring in DE research needs to be viewed in both the contexts of institutional/individual/group research courses and projects, and other research training programmes. Further, mentoring support and mentoring relationship shall
be productive provided the institution and/or the special research interest groups (SRIGs) value research as nothing but essential, and develop committed mechanisms to reduce the gap between what is expoused and what is practiced.

A mentor is the one who is more than a supervisor and guide - a peer supporter, guide, guru, well wisher and joint venturer in a situation of one-to-one relationship. The role of senior researcher or the researcher-boss as an authoritarian guide needs to change towards that of a 'mentor' collaborator, joint venturer, and surrogate student. Mentoring provides opportunities to seniors to learn from the juniors, and promotes meaningful learning by both mentor and mentoree (Cohen and Galbraith, 1995).

In distance teaching institutions, we have the situation of either the supervisor (faculty) guiding the fellow colleagues and students for doctoral work, or the senior investigator of a group project leading and guiding other project investigators, or even an individual academic doing an individual research project (through largely self-guidance). This situation warrants change if we intend to increase research productivity, and enhance the quality of research processes and outputs. Development of a research mentoring system and network, and capacity building thereof, is required to instill seriousness into this process.

Based on a three-dimensional mentoring model of Smit (1999), Morgan and Smit (2000) experimented mentoring in distance education, which could be of use in developing a mentoring system for DE research. The three-dimensional model comprises the key factors distinguishing mentoring relationship (degree of power, level of identification with the mentor, and programme implementation by involvement of the mentor and the mentoree together); and they have noted that mentoring in DE creates multiple discourses, helps overcome isolation, facilitates development of work-based competencies, ensures higher flexibility, and bridges theory and practice. Based on this model, and especially in the context of what we noted earlier that mentoring in research embraces multi-dimensional roles and perspectives, research investigation in distance education may be visualised to take place on-site and/or on-line for project development, research process support, and even for research evaluation. This mechanism needs to be built into (and should rather overshadow) the research policy of institutions, networks, and consortia. And, therefore, research mentoring may take place f2f, at a distance, on-line or even through a judicious mix of these.

Of course, this raises the question of who should be a mentor, and there would be a need for training of mentors. From our point, we have already viewed that (all) teachers/academics and professionals need to do some kind of research, and that the mentors (may be, for the time being, with superior research skills and experiences) from within the institution or from outside (including any place in the globe) need necessarily have the responsibility of exploring together with colleagues and new research entrants, and grow professionally together. This brings to focus the recognition of multicultural issues (i.e. gender, class, caste, ethnicity, race, religion, language, physical and other ability) in the mentoring relationship and operationalisation of the research mentoring system. There is also a need for use of information and communication technologies (ICTs) for developing network/professional groups and associations/SRIGs for promoting...
research mentoring and research professional development. The professional support networks may use collaborative mentoring models, which could be practitioner-centred, experiential, research-oriented (including researching mentoring), reflective, and empowering (Mullen, 2000). Clearly then, while distance teaching institutions impose many restrictions on research, there is a need to resist those impositions.

Some of the questions at this stage include:

• What should be the nature/characteristics/parameters of mentoring in distance education research?

• Who should qualify to be mentors in DE research, and what sort of training would they require?

• What sort of mentoring support (if at all) exists for DE research in institutions across the globe?

• What is the role of language and culture in distance and inter-national mentoring?

• What effect does institutional research policy and faculty attitude have on development and operationalisation of a research mentoring system?

• What kind of mentoring support is needed by young researchers of distance education?

• After all, is mentoring a pre-requisite to do any research in DE, more particularly doctoral research, if one has been working with the system for quite some time and/or possesses preliminary research degrees?

Researching ‘Mentoring in DE Research’

The above discussion instigates us to consider inclusion of mentoring in DE research as one of the research areas. This will facilitate us to further operationalise and improve upon the process of research mentoring. Some of the gender and language issues in mentoring will come to the fore, and this shall also facilitate us in identifying/recognizing and institutionalising ethics and ethical standards (Evans and Jakupec, 1996) in DE research, especially in context of use of information and communication technologies. In a recent investigation on mentoring in DE in context of supporting practicing student doctors, it was found that the performance of those supported by mentoring was superior in terms of depth of treatment, range of perspectives, and localisation of diagnosis and treatment than that of those who were not exposed to it (Panda and Jena, 2000). This is just one of such needed research in this area which can reveal the dynamics and processes of mentoring relationship in research in DE, and eventually suggest mechanisms for increasing the quality of research and research productivity.
One framework that immediately comes to mind is an input-process-output model to research this area. Inputs may include: institutional research policy and valuing of research; research processes and types of research; institutional support for SRIGs, collaborative research, including research funding; staff/faculty development, perception and policies, and embedding research into reflective practitioners; incentives and rewards; general institutional academic and management culture; academic and research freedom; workload; and the like. The process of mentoring involves mentoring relationship for joint exploration in research investigation f2f or at a distance; and output may encompass quality research output; application of research results; development of theories; development of good research practices and institutional/international research culture; development of research networks, collaborative work, and significant self-reflection and professional development. Further, another question concerns: What kind of mentoring relationship upholds the procedure and data integrity in research in DE?

**Role of Information and Communication Technology (ICT)**

The rapid developments in ICTs shall obviously facilitate collaborative research and research mentoring. There is a need to explore the role of ICT in facilitating mentoring, and networking and collaboration. A recent success story is the use of electronic conferencing environment for collaborative research (Jegede et al, 1999) which needs to be replicated in other contexts and explored further. Arguably, therefore, there may be further R&D efforts towards developing and operationalising virtual research environments.

**Incentives and Rewards**

Generally, there hardly is any defined institutional provision for rewarding good research and providing incentives to effective researchers and mentors. We have instances where the teachers of university correspondence course institutes would like to shift to the mainstream university faculty (Sahoo, 1985), and research does not rank high in the faculty priority (Jegede, 1993). In a recent study, Walcott (1997) found that in the USA in the sampled institutions, distance teaching is not valued highly and is not considered as a scholarly activity, distance teaching is less related to promotion, and that rewards for distance teaching depends on the commitment of the concerned academic unit to distance education. DE has always been considered as an outreach programme; and, outreach in combination with technological innovation is poorly rewarded (Dillon and Walsh, 1992).

It is time that we seriously explore the nature and consequences of rewards and incentives for DE research. Research in DE has hardly been considered as a career path; and the DE faculty generally have the incentives of research publication in institutional and national/international journals, research publications as institutional monographs, award of Ph.D. degrees and increments due to completion of Ph.D., research paper presentations in conferences, etc. It needs radical changes in institutional policy to value research for appointment, promotion (tenured and otherwise), and for extra incentive/encouragement for the reasons of research-related institutional and professional benefits as outlined in this paper. Further, there is a need to balance teaching-training-research-extension in institutional policy, funding support and faculty workload. If research is the basis of institutional
operation and management, and if all the functionaries need to do research as the basis of their activities, what is the incentive we are looking for? The ivory towers of open universities should change first.

Even research journals have not been able to sustain due to lack of funding, institutional patronage, and good research reporting. The erstwhile Journal of Research in Distance Education of Athabasca University is the best example before us; on the other hand, we are highly overwhelmed by the initiation of an ejournal International Review of Research in Open and Distance Learning at the Athabasca.

It needs further exploration of the role of traditional institutional culture, traditional staff culture, pattern of research funding, institutional research policy, faculty workload, and others in research incentives and rewards. Further, what incentives are expected and for what purpose, in relation to the status of existing incentive and reward schemes? Also, what incentive patterns are recommended for research mentors; and what effect incentives and rewards have on faculty research productivity and quality of research output?

Research Training

The general state of affairs of research and researchers in open and distance education calls for significant continuing training of researchers, and faculty in distance education research methodology. The comment by Moore (1995) on the state of affairs within DE research (in comparison to that of adult education) and the quantitative vs. qualitative debate calls for a professionally developed and implemented international research training exercise for both mentors and researchers with the objective of developing a committed band of researchers internationally. Some of the difficulties faced by researchers may guide us in designing a training scheme: time allocation, lack of personal interest, finding researchable problem, political interference, lack of personal enhancement from research, and the like (Jegede, 1993). The recent review by Murphy and Yuen (1997), Panda (1992) and Panda et al (1996) may also facilitate this task. Research training is possible through research courses (like masters programmes of IGNOU, Deakin, UKOU, IET-UoL); on-the-job training (IET, UKOU; and ACDE, Penn State); and international research gathering like RIDE (Australia) and CRIDALA (Hong Kong). What is most important is development of training toolkits for researchers and professional development kits for research mentors for training through both in-house and distance mentoring. An urgent area of investigation being student learning (Morgan, 1984, 1993) further necessitates this. We need to collaborate and explore further.

References


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(Professor Santosh Panda is Professor of Distance Education and former Director, Staff Training & Research Institute of Distance Education, and currently incharge Director, Inter-University Consortium for ICT-Enabled Education, Indira Gandhi National Open University, New Delhi 110068, India. E-mail: spanda@ignou.ac.in)
Research, Scholarship and Publishing in Distance Education

Som Naidu, PhD
Head of Research and Evaluation,
Department of Teaching, Learning and Research Support,
The University of Melbourne, VIC, Australia, 3010, Email: s.naidu@unimelb.edu.au
Editor (Distance Education) http://www.tandf.co.uk/journals/carfax/01587919.html

Abstract
This paper explores trends, issues and future directions in research, scholarship and publishing in the field of open, flexible and distance learning. It begins by surveying the changing nature of the field and its implications for research, scholarship, and publishing in the field. It explores issues, questions and areas of investigation in the field, and examines the influence of converging practices from related areas such as virtual/on-line, and other forms of technology-enhanced teaching and learning. The paper takes a close look at opportunities, strengths, and weaknesses of research in distance education and asynchronous e-learning practices. Ideas raised in this paper are intended to serve as a trigger for discussion on this subject. The expectation is that from this exchange of ideas, practitioners will be able to identify, explore, and define areas, issues, questions, and directions for the future that professionals in this field could be pursuing. It is hoped that this paper will attract the attention of novice researchers and scholars as well as experienced professionals in the field.

Existing Practices
Not very long ago, there were just a handful of peer-reviewed and other professional publications covering research and scholarly activities in distance education (DE). Today there are several focused specifically on this field and many others that cover distance education as well, apart from their own core areas. These are too many to list here, and in any case, the point is not the growing numbers of such outlets but their previous core focus and patronage. Some of the areas that have the potential for greatest impact on distance education practices are asynchronous e-learning, and other similar technology-enhanced educational environments. This means that there are a greater number of competing outlets for the publication of research in distance education. That is certainly a good thing for DE scholars, as it gives them and their work much broader exposure than was possible before. Moreover, an increasing number of professional publications with converging goals has also meant that work being carried out in the field of distance education is seen as having potential benefit to other areas of learning and teaching, including conventional face-to-face educational practices.

Much of the early DE literature paid a great deal of attention on ‘descriptive’ type research, which was work that aimed to describe the DE phenomenon. This focus led to some interesting and groundbreaking work on defining the changing nature of distance education activity and theorizing about learning and teaching at a distance (see Keegan, 1990). With more experience, both in the practice of DE and its study, there has been growing interest on assessing the quality of learning and teaching at a distance, and on the influences of various forms of technology in this regard. This research has drawn...
from what we already know about human cognition, learning, and teaching, and about the effects of educational technology including how to go about ascertaining their effects validly and reliably. One of the most noteworthy contributions to educational practice of engagement in distance education has been the awareness and interest in learning and instructional design processes and course design and development in general. Mostly because of the need to pay greater attention to distance learners, educators have come to realize that “shoveling” lecture notes and class schedules (known as “shovel ware”), into printed Study Guides and on-line learning environments is not going to be enough. A lot more is necessary to engage learners and support them in their learning. Despite these positive developments in the direction that DE research is currently taking, it would not be erroneous to suggest that research and scholarship in this broad field of DE is still very weak from several perspectives. Part of this lies in the multidisciplinary nature of the field, which restricts the emergence of one or more clearly defined and widely accepted research methodologies. Researchers in this field tend to adopt research methods from areas such as education, humanities or the social sciences, and sometimes applied less rigorously than in those disciplines. Several studies prepared by The United States Institute for Higher Education Policy in Washington, DC for The American Federation of Teachers and the National Education Association observed some serious limitations with existing research practices in DE (see for instance, Phipps & Merisotis, April, 1999, http://www.ihep.com/Pubs/PDF/Difference.pdf; For other related reports see also http://www.ihep.com/Publications.php?parm=Pubs/PubLookup.php). The report by Phipps and Merisotis (1999) is based upon material that was published during the 1990s. It places particular attention on those types of technologies that are currently being used by the majority of institutions. This report concentrates primarily on an evaluation of all original work — including experimental, descriptive, correlation, and case study research. It also summarizes key information and findings of other policy papers, articles, and essays that dominated the literature. The authors of this report concede that while this review of original research does not encompass every study published since 1990, it does capture the most important and salient of these works. From this limited group of original research they found that the three broad measures of the effectiveness of distance education usually examined are: student outcomes such as grades and test scores; student attitudes toward distance learning; and student satisfaction toward distance learning. Phipps and Merisotis claim that most of the studies they examined conclude that, regardless of the technology used, distance learning courses enjoyed high student satisfaction rates, and compared favorably with classroom-based courses. For example, many experimental studies they studied indicate that students participating in distance learning courses performed as well as their counterparts in a traditional classroom setting. These studies found that their distance-learning students had similar grades or test scores, or had the same sorts of attitudes toward their course. The descriptive analyses and case studies focused on student and faculty attitudes and perceptions of learning courses performed as well as their counterparts in a traditional classroom setting. For example, case studies and essay that dominated the literature. The authors of this report also claim that the most significant problem had to do with the overall quality of the research, which pretty much rendered many of the findings inconclusive. Phipps and Merisotis claimed that the findings of the original research must be read with some caution. Assessing the quality of the research conducted in the area of distance education, they found that the most significant problem had to do with the overall quality of the research, which pretty much rendered many of the findings inconclusive. Phipps and Merisotis claimed that the findings of the original research must be read with some caution. Assessing the quality of the research conducted in the area of distance education, they found that the most significant problem had to do with the overall quality of the research, which pretty much rendered many of the findings inconclusive. Phipps and Merisotis claimed that the findings of the original research must be read with some caution. Assessing the quality of the research conducted in the area of distance education, they found that the most significant problem had to do with the overall quality of the research, which pretty much rendered many of the findings inconclusive. Phipps and Merisotis claimed that the findings of the original research must be read with some caution.
of good research requires determining if the studies adhered to commonly accepted principles of good research practice. They argue that this is essential if the results of the studies are to be considered valid and generalizable. If a study does not abide by these proven principles and practices, the results they derive can be erroneous and misleading. The Phipps and Merisotis report flags the following issues as the shortcomings of the surveyed literature.

- Many of the experimental studies did not use randomly selected subjects.
- Much of the research experimental research reviewed did not control for extraneous variables and therefore could not show cause and effect.
- The validity and reliability of the instruments used to measure student outcomes and attitudes were questionable.
- Many of the studies did not adequately control for the feelings and attitudes of the students and faculty.

These are critical concerns and they need serious consideration by researchers in the filed, as these issues seem to be still prevalent in much of contemporary DE research.

Research directions: Opportunities and challenges

The following adopts the research categories from the Phipps and Merisotis report to explore opportunities and challenges for those sorts of research in distance education.

Descriptive studies

Descriptive research comprises the collection and reporting of data on organizations, programs, and/or processes. In distance education settings, descriptive studies have typically been concerned with reporting on organizational initiatives, programs, processes, challenges, successes, and their failures. These reports tell a story about what was done, where, why and how. Much of this data is derived from institutional records or collected to answer particular questions of donor agencies and other such stakeholders. Some of this data is also collected with surveys and other structured or semi-structured observation tools.

Good descriptive research comprises valid and reliable data, which reveal interesting trends, and chart new directions. The bad ones, and there are plenty of these, are boring, and they tell you nothing new, except report that this is what we did here, why and our way. Such research is particularly useless, especially after you have read a few times how, for instance, how radio has been used to educate a group of people somewhere, or how Science was being taught in the distance education mode -- no offence is intended.

To be of any interest to peer-reviewed journals, descriptive research must meet certain criteria. These would include rigor in the reporting of programs and processes, and use of reliable instruments for gathering pertinent data. A very important component of descriptive research is the validation of its measurement tools in order to determine if they measure what they were supposed to measure. Good descriptive research must seek to report innovative efforts -- efforts that contribute to what is known about certain phenomenon. No one wants to read and publish another description of how broadcast television has been used to teach at some regional institution or how they have been developing and distributing their study materials, if there is nothing inherently creative or ambitious about the process.
Case studies

Case study research is an in-depth examination of one organization, one project, or one subject. For a case study, the researcher may use a variety of methods to gather data on the phenomenon that is being studied. The explanation of the phenomenon is generally presented in narrative form, although it may comprise data in a range of formats including audio and video materials. In distance education settings, a case study may take the form of a report on how a program is being offered to a particular group of students, how a subject is offered using particular technologies. The problem with much of this type of research is that the bulk of the reports do not go beyond much more than a "dry" and boring description of the delivery technology. They lack any significant focus on any innovative learning design within that context, or a critical analysis of the experiences of stakeholders.

The requirements for good case study research are not too different from the requirements for good descriptive research. A good case study reports on a single unit or case. As such, it has a character, totality, and a clear boundary. The report reflects some kind of unity in the system, project, or process that it is reporting. Moreover, there is a unique way of organizing data in the report, which preserves the unitary character of the object or process that is being studied. A case study researcher is seeking patterns, regularity, and commonality in the study. The responsibility for interpretation of case study reports is shared between the researcher and its reader. Observing the same phenomenon from the same point of view by several researchers can validate case studies.

Correlation studies

Correlation research involves collecting data in order to determine whether, and to what extent a relationship exists between two or more quantifiable variables. In this form of research, an estimate is provided of just how related two variables are. For instance, if two variables are highly related, a correlation coefficient near +1.00 (or -1.00) will be obtained; and if two variables are not related, a coefficient near .00 will be obtained. One example of a correlation study might be determining the relationship between student satisfaction with an instructor or the type of technology used. It is important to note that correlation research never aims to establish "cause and effect"; it only reveals relationships. Correlation studies fall into this trap quite often.

Experimental studies

Experimental research is the only type of research that can truly test hypotheses concerning "cause and effect" relationships. In an experimental study, the researcher manipulates at least one independent variable and observes its effects on one or more dependent variables. In other words, the researcher determines what is being investigated; who gets what, and which group of "subjects" will get which treatment (i.e., the independent variable). The groups of subjects in the study are generally referred to as experimental and control groups. Ideally, in experimental research the groups of subjects to be studied are randomly selected before the experiment to eliminate any bias due to sampling. This procedure is not followed in other methods of research.

The essence of experimentation is the concepts of "prediction" and "control". A researcher strives to ensure that the experiences of all the groups of subjects in the study are as equal as possible on all the important variables except the independent variable. Such experimental research is very hard to carry out properly in distance education contexts due to the difficulty of controlling for confounding variables in such
"open" settings. This is a very good reason to stay away from carrying out experimental research unless of course you are able to keep your treatment groups intact.

**Evaluation studies**

Evaluation studies comprise the systematic acquisition of feedback on the use, worth and impact of some object, program or process in relation to its intended outcomes. The major goal of evaluation studies is to influence decision-making of some sort through the provision of feedback. The most basic distinctions between the various types of evaluation are often drawn between formative, summative, and monitoring or integrative evaluation. Evaluation studies are different from research studies in several ways. At the very basic level, research studies are usually undertaken to satisfy the curiosity of an investigator. Evaluation studies on the other hand, seek to study the impacts and outcomes of processes that were designed to contribute to the solution of a practical problem. Both sorts of studies require nevertheless, the same level of rigor. The general tendency in the field has been to collect data from very crudely developed instruments such as surveys and questionnaires without much thought to what is being evaluated, how and how systematically.

**Getting your research published: Some guidelines**

The following comprises some guidelines for getting your research published in peer-reviewed outlets such as journals and books.

All papers that are submitted for publication consideration by journals are reviewed by members of an Editorial Board of the journal with expertise in the areas(s) represented by a paper, and/or invited reviewers with special competence in the area(s) covered. In most cases, the editors reserve the right to make minor alterations to all papers that are accepted for publication.

Insisting on methodological rigor in the conduct of your research is extremely important. You will be well on your way to getting your work accepted by your peers if you employed sound methodology in the conduct of your research. The rest of the process is much easier. Let us first deal with what most peer-reviewed journals are looking out for.

**Critical attributes of publishable material**

Most journals would be examining your submissions using some variation of the following criteria. Be sure to ask yourself the same questions. Does your article do the following? To what extent are you happy with your own responses to these questions?

- **Contribution to the field.** How would you rate the contribution of your paper to the field on the following scale – "significant/moderate/minor"? Does it advance ideas in the field or merely replicates existing and accepted viewpoints. Would readers find the information novel, valid, and yet easy to implement. Any thing other than significant contribution will not be acceptable to most high quality publications.

- **Quality of ideas, goals, and intentions.** How would you rate the quality of the ideas, goals and intentions of the paper on a scale of "high/moderate/low"? Anything less than high or moderate will not be acceptable to most editors.

- **Importance of topic to the readers.** How would you rate the importance of the topic of the paper to the readers of the journal on scale of "important/of some interest"? This is most critical. Reviewers will not take lightly to articles that do not fit the goals and orientation of their publication. Be sure that you are sending your article to the appropriate journal, or else you will be losing valuable time (several months) in finding out eventually that your article is not suitable for that publication. Do not forget that, you will have been abusing the privilege of the peer-review process by occupying valuable time of your colleagues. If you do, you run the risk of...
developing a poor reputation for yourself in the professional community, which can be very damaging to your career.

• **Relevance of ideas to the readers.** How would you rate the quality and relevance of ideas in your paper to the readership of the journal on a scale of "spot on/of some interest"? The issue of relevance is closely associated with the subject of importance of the topic, and so the same sorts of cautionary remarks apply here.

• **Methodological rigor in your paper.** How rigorous is the methodology you have employed in your paper on a scale of say "excellent/acceptable/poor"? This would include attention to the review of the relevant literature, approach to gathering of data, analysis of that data, presentation and interpretation of the findings, and their discussion? The use of a rigorous and relevant methodology is critical. A weak and inappropriate approach to the study you are reporting will undermine the whole paper, despite how well it is written or presented. Do not think you will be able to dazzle the reviewers with smart use of the language and interesting use of tables and/or graphics. Your reviewers will more than likely have a lot more experience in this business, and they will not be easily fooled.

• **Coherence in the paper including use of language and writing style, presentation of ideas, review of the relevant literature, presentation and interpretation of data, and discussion of the data.** How would you rate the use of language and overall expression and writing style in the paper on a scale such as - "excellent/acceptable/loose"? Most journal editors and reviewers will find poor use of the language and writing style very irritating. They expect you to get that right, even if there is nothing much else in the paper. So, be sure that your paper reads well, and is clear of any sloppy errors of spelling and grammar.

• **Technical merit of the paper (construction and adherence to publication guidelines).** How would you rate the technical merit of your paper including its adherence to the Journal’s publication style on a scale of "high/average/poor"? There is no excuse for not following the publications guidelines prescribed by journals. Many editors will not send your paper out for review, if it does not adhere strictly to their published guidelines. It is your responsibility to find this out and follow the conventions exactly as prescribed.

**Authorship**

For a person to claim authorship of a publication, he or she should have had substantial participation in the creation of the publication by:

• Participating in the conception and design of the research to which the publication relates ('relevant research'), or analysis and interpretation of relevant research data; and

• Drafting the article or revising it critically for important intellectual content; and

• Giving final approval of the version to be published.

Participation solely in the acquisition of funding or the collection of data is not sufficient for a person to be attributed as an author of a publication. General supervision of the research group is not sufficient for authorship either. Other persons who contributed to the work but who are not named as authors should be mentioned in the ‘Acknowledgements’. An author must ensure that the work of research students, research assistants, and technical officers is recognized in a publication derived from research to which they have contributed.

**Length of articles**

Articles should not exceed 7,000 words and must include a clear and concise abstract of 100 to 150 words. Longer articles may be acceptable for publication consideration after
agreement is reached with the Editors. All submissions including abstract, figures, tables, and references must be double-spaced, and typed on one side only with at least one-inch margin on all sides. Contributions might be able to be submitted in electronic form, although a paper copy is often preferred. To facilitate blind review, all indication of authorship must appear on a detachable cover page only. It is unwise and unethical to send your paper out for consideration to more than ONE journal at a time.

Adherence to preferred publication style

The importance of preparing submissions for review according to prescribed publications style of a journal cannot be over stressed. Submissions for review must be prepared according to the prescribed publication style. Most journals use the Publication Manual of the American Psychological Association, which is published by the American Psychological Association. Most journals will not consider submissions that are not prepared using their preferred style. The presentation of citations, references, equations, and all other similar information should strictly conform to the preferred Style of the journal. Authors are responsible for checking the accuracy of these and ensuring that all in-text references appear in the Reference List at the end of the contribution. A Reference List is not the same thing as Bibliography. A reference list is a list of sources, which you will have used in your article. A bibliography on the other hand, is a list of sources on the subject of your paper, not just the ones that you have cited in the preparation of your paper.

Preparing figures and tables

Figures must be submitted in camera-ready format suitable for reproduction. If this is not possible, figures will be redrawn by the publishers, in which case there is a chance that they may not come out the way you wanted them. Type figure legends double-spaced on a separate sheet of paper. Indicate the title of the article and the number of the figure lightly in pencil on the back of each. The captions to illustrations should be placed together and typed on a separate sheet. All figures and tables should be numbered separately using Arabic numerals, and placed together at the end of the manuscript. Clearly visible notes within the text (such as "Place Table 1 About Here") should be used to indicate their approximate placement in the article.

Plagiarism and copyright

If you are citing previously published work in your paper, be sure to acknowledge it appropriately and fully. If you are using such material in its original form, then it is your responsibility to obtain permission to use them in that form. Editors of journals will require that permission, before they will proceed with the publication of your article.

Publication of more than one article based on the same set(s) or subset(s) of data is not acceptable. It is acceptable only where each subsequent paper fully cross-references and acknowledges the earlier paper or papers as the case may be (for example, in a series of closely related work, or where a complete work grew out of a preliminary publication and this is fully acknowledged). An author who submits substantially similar work to more than one publisher must disclose this to the publishers at the time of the submission.

Before you send your paper off, consider the following

• Is the title of your paper concise, stimulating, and relevant? Eliminate redundant words from the title. Careful and parsimonious use of words in the title will help librarians and others to catalogue and archive your article in the appropriate places, and also enable it to be picked up by the right researchers. In thinking about the title
of your paper, think about who might want to be reading it and why, then use words to capture that interest.

• Does the abstract summarize the article precisely and succinctly? Does it entice you sufficiently to want to read more? Is it a succinct summary of the paper including findings and recommendations?

• Does your paper make clear the links with preceding and current literature? Is the research question/problem clearly identified? Is the aim of the paper/research clearly stated? Is the literature review relevant and comprehensive?

• Is the research design appropriate? Has it been clearly described and justified? Are the approaches to data analysis adequately justified? Have issues around reliability, validity, and trustworthiness been addressed? Have you considered the ethics of the research?

• Are the results clearly presented? Are tables and figures relevant and explained? Is the discussion based on the results? Have the findings been analyzed effectively? Have the results been interpreted accurately?

• Have the aims of the paper/research been fulfilled? Does the discussion relate back to the literature review? Have you discussed the practical implications of the results? Do the conclusions relate logically to the results/discussion?

• Has the correct referencing style been used? Are all the references quoted within the text also listed in the reference list at the end of the article? Are the references complete?

Concluding remark
This paper set out to explore trends, issues, and directions in research, scholarship and publishing in the field of distance education. Its purpose is to trigger meaningful debate and discussion on the subject with the expectation that from such discourse will emerge, an improved awareness of the issues that confront researchers in this multidisciplinary field. As such, this paper is somewhat conversational and purposefully open-ended with many of the issues it raises. This is to allow readers and participants in a discussion of its contents, to bring to it their own commentary and draw their own conclusions.

References

Moderators' report and summary of discussion
Pre Pan-Commonwealth Forum on Open Learning

2004 virtual conferences
www.col.org/virtualconferences

Topic 2: Research and Evaluation
Dates: Tuesday, 18 May – Friday, 28 May 2004
Moderators: Professor Bernadette Robinson, Centre for Comparative Education Research, School of Education, University of Nottingham, U.K. and Dr. Charlotte Creed, International Research Foundation for Open Learning, Cambridge, U.K.

This e-conference was moderated by Charlotte Creed and Bernadette Robinson who have been working on the development of the COL PREST materials for the last eighteen months. In the course of this work, several things became apparent:

- the need for more and better research in ODL and the existing gaps in research on ODL;
- the interest of practitioners in learning more about doing research and evaluation;
- the limited opportunities available to practitioners and researchers to discuss matters of research;
- the need, ideally, for a community of practitioners who could identify and demonstrate fundamental principles of good research in ODL, to guide ODL researchers, evaluators and publishers;
- the need for a stronger knowledge base to assist planners and decision-makers:

> Politicians, businesspeople and increasingly the general public, have the idea that distance learning can change radically the face of education. We have a duty to let them know whether or not these expectations are grounded in reality.

Daniel, J.
2002:2

This experience and the interest of COL in assisting the development of researchers led to this e-conference on research and evaluation in ODL.

Who participated?

The e-conference attracted 231 international participants, of which 69 were active contributors to the threaded discussions and made in total 269 postings. The archive of the discussion can be found at URL: http://hub.col.org/pcf3research. The participants were located in 14 countries, with the largest groups in Canada, South Africa, India, Australia, and the United Kingdom. They came from a wide variety of backgrounds and institutional settings and included higher education students (graduate, MA and PhD levels) and academics, ODL journal editors, educational consultants, professional researchers working in higher education research units, agencies and NGOs, ODL programme managers, Ministry of Education officials (including a Permanent Secretary and a Senior programme officer) and knowledge resource management experts. The majority were working in higher education although there were others...
working in the areas of teacher education, secondary schooling, agricultural extension and vocational programmes.

The participants were therefore a diverse group, ranging from novices thinking of doing some research to ‘professional’ and highly experienced researchers. Inevitably, their interests varied accordingly and we felt that the e-conference was able to meet the needs of some participants more than others. On the basis of the feedback we received, it seemed to us that those who were relatively new or inexperienced in research, or to the field of ODL, got the most out of the experience. One of the most difficult choices we had to make, as moderators, was whether to keep the discussion open and broad, to meet the wide range of interests and expertise, or to focus it down to more specialist discussion. We chose to do the former in order to involve new practitioners. In the course of the discussion distinctions emerged: between researchers based in industrialised and developing countries, and between ‘academic’ researchers pursuing higher degrees and practitioners wanting to pursue issues arising from their work. These last two issues were neatly captured by Judith Kamau, Botswana, when she wrote:

Many of the contributions by participants from the developed world talk of on-going research projects for PhD and other qualifications. While these issues are valid, no contribution so far has addressed the wider scope of training in ODL to capacitate people to even carry out a simple needs assessment appraisal for implementation of ODL programmes. I would have been delighted to see comments that strive to bring ODL practitioners on an equal footing in terms of knowledge about research methodology. So when colleagues say this is not one of the issues I get rather worried because this is a demonstration of the fact that we are at different levels of development in research particularly comparing the developed and the developing world.

Email contribution in the pre-PCF3 e-conference on Research and Evaluation in ODL, May 18th-25th, 2004.

Starting questions:

1. Does researching or evaluating open and distance learning (ODL) present any distinctive methodological challenges? If so, what are they? How can the challenges be met?

2. What constitutes good quality research and evaluation in ODL? What criteria should we use in judging research and evaluation quality?

3. Do research and evaluation practitioners in ODL need any particular sets of skills? How can practitioners improve their skills? What are the best ways of doing this?

Themes and issues arising

Out of the resulting discussion, several themes and issues emerged:

- the need for rigour in research done, whether in ODL or other fields of education;
- the lack of funding and political will in supporting research in ODL;
- the need for research directed towards improving practice in specific contexts as well as towards generating new ‘truths’, conceptual frameworks and generalisations that transcend specific situations;
access to the research literature on ODL and the impact on current research choices and conduct;

the quality of research done (and the varying views on this, with some thinking it was good and others that it was not);

the need to expand formal and informal opportunities for research skills development in developing and developed countries and appropriate to researchers working in a range of contexts (e.g. ministries, education institutions, international agencies, etc);

the particular challenges of research capacity building and of doing research in developing countries;

difficulty of making sense of the ODL research landscape and of understanding its topography;

the importance of dedicated databases systematically collecting, filtering and disseminating information and literature on ODL as essential underpinning for research in ODL and the problems resulting from the demise of some databases and information services (such as ICDL)

why the research done is not made use of sufficiently. One participant (Barbara Fillip) suggested three possible reasons and one possible solution:

- Research isn’t addressing the immediate knowledge needs of practitioners?
- Research findings are not presented in user-friendly formats?
- Research findings are not easily accessible?
- Can action research address some of the current concerns by forging more ongoing linkages between researchers and practitioners by making the educators, administrators and students essential members of the research team?

It was clear from the discussion that some of the issues are complex, that participants had a wide range of needs and interests and that the three starting questions still need more debate. We hope that the PCF3 conference will provide some opportunity for this. There’s clearly no shortage of constructive ideas!

One of the most productive outcomes of the e-conference was resource identification: participants have shared information, references and websites. Nick Gao at COL’s Information Resource Centre provided excellent backup in providing comprehensive reference for requested areas such as the research agenda in e-learning, the research agenda in teacher Education, and references on the use of Distance education in agriculture and Extension education. Two sets of references about research in ODL appear at the end of this summary.
This exchange was a good example of how a community of practitioners can help to build research capacity and initiative. We hope that this kind of sharing can continue in some ways and we include this in our list of possible next steps.

**Recommendations**

Based on the exchanges in the discussion, there seems to be a clear demand for more formal and informal forums for exchange of information, expertise and references in the area of research and evaluation in ODL. COL and other lead organisations might like to consider some of the following practical ideas:

1. Short, expert-led seminars and study circles (virtual or otherwise) in particular areas of research in ODL or research skills.

2. Promoting research and evaluation skills development in a wide range of ways, e.g. as part of a development project, encouraging research partnerships, mentoring schemes, study leave, donor/funding pressure, in journals and newsletters.

3. Investing in a dedicated one-stop website for ODL researchers with links to other centres of excellence, pools of information and training resources.

4. New strategies to help a maintain critical overview of information and literature in ODL (in an age of information overload):
   - regular commissioning of critical state-of-the-art research overviews in particular areas of ODL, e.g. in terms of the subject areas (teacher education, agricultural extension, health, literacy), areas of investigation in ODL (student support, management of DE delivery, course design) types of research (impact studies, cost studies, formative evaluations) educational levels (higher education, basic education, vocational) or reconfigured in new ways (e.g. the contribution of ODL to the Millennium Development Goals (MDGs) and Education for All (EFA))
   - dedicated databases/websites for particular areas in ODL (e.g. teacher education, basic education, agricultural extension) which, guided by board of experts in the field, collect and categorise key references, attempt to provide an overview and research agenda for the area, provide good practice guidelines and well-documented case-studies. These could act as one-stop shop for policy makers and researchers in the field.
   - Abstracting
   - Selected and annotated bibliographies in particular areas of ODL.
   - Investment in a high quality, internationally-orientated dedicated database which can systematically collect and categorise literature in such a way that researchers can conduct finely tuned searches and are kept up to date with latest ODL news and information (rescuing ICDL from oblivion?).

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---Charlotte Creed and Bernadette Robinson---
Target audience: assembling a profile of your learners

Alan Woodley and Alison Ashby

In this chapter we look at the various reasons why you might want to know about your learners. This leads into a consideration of what information you might require and how you might collect, store and access it. A practical example is given for illustration.

INTRODUCTION

If you are teaching in a classroom situation and you notice that the students are smiling and attentive, you guess that you are on the right lines. If your students are looking bored or confused, you have the opportunity to review your teaching strategy, to discuss matters with your students and to make the necessary improvements. When you are running an open or distance learning course there are still possibilities for changes in mid-course, but they are likely to be much more expensive to make and more difficult to implement. The production of open and distance learning courses involves a large investment at the design stage. Therefore, by the time the course comes to be presented it should be stimulating and pedagogically sound. On the face of it, it would also seem to make good educational sense to say that you will design your course to suit your target audience, but this raises three basic questions.

First catch your student

What do you know of prospective students? If you are lucky your target audience may also be a captive audience. For example, you may be designing a course for a particular group of employees within your organization. You will know their characteristics from staff records and you know what skills they have to acquire. However, many course designers will not be able to gain a profile of the students until after the course has been designed because people don’t sign up until there is a course to sign up for.

Coping with variety

Will a profile aid course design? Mature students on open and distance learning courses rarely form a homogeneous group. They vary in terms of their age, their motivation for study, their educational background, their personal study circumstances, etc. Therefore, while a profile of your would-be students will indicate the range of characteristics that need to be catered for, it will not necessarily solve all your design problems.

Knowing for other reasons

Can profiling help in other ways? We would argue that it helps in three important ways even if the information arrives too late to help in the design of your current course. First, it becomes a database that can be drawn on when designing future courses. Secondly, it allows you to monitor which types of student succeed on the course. Finally, it allows you to measure whether the course is attracting the types of student that it was intended to.

HOW DO YOU BUILD UP A PROFILE?

Given the problems of profiling your students at the course-design stage, what strategies are available to you? What procedures do you or your organization adopt? We would suggest four possibilities — but you may be able to think of others.

Pseudo-profiling

You may be able to identify groups of people who are engaged on similar courses to the one you are designing, or who are on courses which are likely to feed into your new course, or who for some other reason you believe will be very interested in enrolling.

Developmental testing

If you have the time and resources to test out an early version of your course on a group of students who have been recruited from the population of potential students, the testers themselves can be profiled to confirm or refute your assumptions. However, do not assume that volunteers are necessarily typical.

Administrative forms

A key time to gather information on students is when they come to apply or register for a place on a course. While only certain facts are needed for entry, e.g. name and address, course choice, most people are willing to answer a limited number of voluntary questions about themselves.
Student surveys

Additional information about students can be gained after they have registered by means of surveys. These can be censuses or sample surveys. They can be carried out by mail, by phone or at tutorials. It may even be possible to use computer conferencing.

WHAT GOES INTO THE PROFILE?

There is an infinite amount of information that you could collect and collate about your prospective students, but what will actually help you with your course design? This will depend to a large extent on the nature of the planned course and the target group, but we outline three basic types of information below.

Previous learning

A basic tenet of good teaching is that it should be pitched at the right level for the students – 'start where students are'. If you have a rigid admissions procedure this can be predetermined but in many situations you will need to discover this level. However you should be aware that measurement of previous learning involves the dimensions of time, level and relevance. For example, one of your students may have a degree while another has no formal qualifications. However, the first person may have taken their degree in an unrelated subject over twenty years ago, whereas the second person may have many years' work experience in the subject of your course.

Other study factors

There are a whole host of other factors apart from educational preparedness that will affect how students react to your course. Some of these will influence your course design, whereas others impact on the support you offer students.

Do the prospective students have access to equipment that you were thinking of using on the course – for example, phones, tape-recorders, video-recorders, computers, etc?

What is the students' motivation for taking the course? What are they aiming to get out of the course? Have they chosen to take the course or have they been told to by their boss? Are there penalties for failure?

What experiences do they have in work, community and family contexts that can be drawn upon to make the subject-matter more relevant and interesting?

What barriers may inhibit successful course completion – for example, unsupportive employer, difficulties with fees, highly mobile job, English as a second language, etc.

Target groups

What information you need will depend upon the purposes of your own course. If you want to ensure that the course is meeting the equal opportunities aims of your institutions, or you want to collect information on age, gender, disability and ethnicity, you may want to ensure that you are training your technical staff rather than your managers, or vice versa. Are you attracting students from across the country or only in certain locations?

SOME PRACTICALITIES

It is easy to get carried away and to say that of course we need to collect all of this information so that we know our students in minute detail. However, we must now come down to earth and decide what is actually feasible, given the nature of the course you are planning, the expected number of students and the likely impact of the information that you collect. There are always constraints of time and money, but there are also certain practical issues to face. Here are a few for you to consider. After reading them we suspect you will be able to add one or two more:

• While the new course may be of prime importance to you, it may be a minor concern for the students. They may not be willing to fill in long questionnaires or take part in in-depth interviews.

• Certain types of information, such as literacy skills, personality characteristics and learning styles, may be of great interest but they are extremely time consuming and expensive to collect on a systematic basis.

• If you are going to collect and store information on complex variables such as occupation and educational qualifications you need to know how you will transform it into numbers. Your basic choice is between getting the students to choose from a set of pre-coded answers or coding their open-ended answers at a later stage. The latter is more 'scientific' but can be very expensive if large numbers are involved.

• If you want to make comparisons with other courses, your data must be categorized in the same way.

• The application form is a good place to collect data but you will be fighting against pressures to keep it as simple and inviting as possible.

• Some topics, especially in the equal opportunities area, are extremely sensitive. It may be relevant to your course design to know about a person's religion or sexual orientation but the data might be impossible to collect.

• Some data go out of date. If you measure a person's occupation, their marital status, their educational qualifications, then their answers are only valid at a particular moment.

• If you collect information on prospective students and hold it on a computer, you are likely to be constrained by something equivalent to a Data Protection Act.
CREATING AND ACCESSING A DATABASE

Up to now we have considered the collection of data for a student profile. Questions concerning the storage and accessing of the data are of equal importance. If the numbers are small and the data are collected by you personally, you may be able to meet all your needs by manual or simple spreadsheet analysis. However, if it forms part of your company or institution records, access may have to be negotiated. It is in your interest to consider the following questions.

Who owns the data?

Data ownership is an important issue in all organizations and institutions. If you are planning a course for employees in a company the personnel department is likely to 'own' the data although not all companies have a separate personnel department. In these circumstances tracking down data ownership and indeed the records may be more difficult. In an academic institution the registry or library is likely to be the data owner although more comprehensive records may be held in individual departments. The first task is to try to establish who owns the data so that you can obtain permission to access the data.

How are the data held?

The next task is to establish how the records are held. Although it seems reasonable to assume that most organizations and institutions will have computerized records you may find that only part of the information you require is stored that way. For example, specific information concerning students or employees with disabilities may be on a manual system. In these circumstances you will have to weigh up the costs of retrieving the information against the benefits to be derived from having it.

How will you access the data?

The first consideration is the level of access. This will depend on whether you require direct access to the data, either via the computer or manual records, or whether you have to specify the data you require for a third party to provide. The latter is far more limiting since initial profiling often throws up more questions which you may wish to pursue later.

Secondly, you will need to consider how you are going to access the data if you are given direct access to the data, especially if it is held on a computer system. If the data is held on a mainframe computer and you wish to transfer the information you are interested in to a PC you may need some technical support. Even if the data is held on a PC you will need to consider in what format or software package the data are held and ensure that you can transfer it to a suitable package on your own machine. You will also need to decide

what is a suitable package for the analyses you intend to undertake. Spreadsheets are becoming more and more powerful but if you will need to record a number of variables, create new variables and carry out more complex statistical analyses, a statistics package is likely to be more suitable.

If this starts to sound intimidating, don't worry. In most cases colleagues are only too happy to help and advise.

How will you hold and maintain the data?

At the course planning stage, a research database that contains basic information on prospective students or employees and that provides simple frequencies and cross-tabulations, may be adequate for your purposes. However, once the course becomes 'live' you may wish to hold individual student records which include items such as demographic data from the application form, previous course histories if available, and details of progress through the course for monitoring and evaluation purposes. This will involve updating your database from administrative databases. You will need to ascertain at what points progress data such as assignment scores, attendance at residential schools, examination attendance and examination scores are available. In addition to the technical questions concerning how these data can be transferred, you will have to consider how often it is necessary to update your system.

As part of your monitoring and evaluation you may also wish to conduct surveys to collect student and employer feedback where relevant. If you hold your data in a statistics package you will be able to draw random samples for your surveys. In addition you may be able to cut down costs by omitting questions on data you already hold. Survey data combined with data from administrative records can provide a very rich research database.

Who should be doing it?

You might be asking why you as a course designer need to set up a profiling and monitoring system. Why can't the administration or personnel department provide the sort of analyses you require? It is possible that they can, but management information tends to deal in generalities whereas profiling and monitoring need to be tailored to the individual course. However, it still might not be worth your while to invest the time and energy in creating such a system. Certainly it might be worth 'buying in' expertise for ad hoc surveys. At the Open University we have a research department that provides an interface between the administration and the course designers.

AN EXAMPLE OF PROFILING IN USE - 'ETHNIC ORIGIN'

As part of an action plan on access and equal opportunities, The Open University began to monitor the ethnic origin of its students on a regular basis in
1990. The details of how this was carried out serve to illustrate a number of the points we have made above:

- The question was placed on the application form. This meant that we could compare the ethnic origin of those who did or did not become students. It also means that, although the question was voluntary, most people provided the information.
- The actual format of the question was very similar to that used in the 1991 Census. We expanded and altered the options that people could choose, but we did it in such a way that they could be collapsed back into the broader categories of 'Asian', 'Black', 'White' and 'Other' that are used in other studies.
- The information became part of the student's computerized student record. Consequently we were able to look at topics such as representation, course choice and progress (see below); to merge this information with other characteristics in the profile such as age, gender and occupation; and to select samples for surveys or other special studies.

Initial results from the data suggest the following:

- OU students match the overall UK population fairly closely in terms of ethnic origin.
- The figures for part-time and full-time higher education courses elsewhere were broadly comparable.
- Black students tended to have lower previous educational qualifications on average and the Asian students held the highest qualifications.
- Black men were twice as likely as white men to be unemployed.
- Over one half of the black students and one quarter of the Asian students were in the London region. This appears to correspond to the geographic distribution of black and ethnic minority people.
- Compared to white students, black students entering the undergraduate programme were much more likely to choose the Science or Technology foundation course (see Table 2.1). They were relatively unlikely to choose Arts or Science. Asian students also tended not to choose Science or Arts and to prefer Technology, but not to such a marked extent. What stands out most is the relatively high numbers who chose the Maths foundation course.

Table 2.1 The foundation courses taken by new OU undergraduates (1990 and 1991) (%)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Asian</th>
<th>Black</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 1,203)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts</td>
<td>16.8</td>
<td>11.4</td>
<td>23.5</td>
</tr>
<tr>
<td>Social Science</td>
<td>23.8</td>
<td>16.3</td>
<td>23.8</td>
</tr>
<tr>
<td>Maths</td>
<td>23.4</td>
<td>15.8</td>
<td>15.0</td>
</tr>
<tr>
<td>Science</td>
<td>16.6</td>
<td>11.3</td>
<td>20.0</td>
</tr>
<tr>
<td>Technology</td>
<td>19.9</td>
<td>25.3</td>
<td>17.6</td>
</tr>
</tbody>
</table>

Figure 2.1 The percentage of new OU students who gained a course credit on the Technology foundation course in 1990 and 1991, analysed by ethnic origin and educational qualifications (course based)

- Black and Asian students were less likely to complete their first year of study with the OU than white students. By combining information about ethnic origin, previous educational qualifications and course choice we were able to look for possible explanations for this finding. In Figure 2.1 we show the results for the Technology course as an example. We can see that white students fared better than Asian students, who in turn made better progress than black students, regardless of the level of previous qualifications. The progress made by black students with high qualifications was particularly disappointing on this course.

CONCLUSIONS

Student profile data can contribute to our understanding of adult learners, in terms of their characteristics, their goals, their expectations and factors affecting their motivation. Used effectively, and in combination with data on progress and student feedback, this information can help designers to create courses which will meet the needs of prospective students. This will lead to greater student satisfaction, which in turn will produce greater commitment to the organization providing the course and improved institutional performance on any external teaching assessments and quality reviews. It is also important for targeting. Increasingly we need to know whether our courses have attracted the types of student for which they were intended and, for marketing purposes, we need to know how to encourage more to enrol.

However, while it can be argued that it is a good thing to obtain a student profile, we hope that we have shown in this chapter that it is not a straightforward procedure that can be followed like a recipe book. There are a lot of areas that have to be negotiated concerning what data are needed, when and how they will be collected, in what form, by whom, etc. The answers to these questions will depend upon the nature of your organization and the types of courses that you are planning. Assembling and maintaining a student profile can be an expensive and time-consuming business. However, if it contains
relevant and accessible information it can constitute the cornerstone of an organization's quality assessment policy. In this age of diminishing resources and increased competition, we ignore the needs of our prospective students at our peril!

FURTHER READING

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Woodley, A., Taylor, L. and Butcher, B. (1993) Developing an action plan for equal opportunities at The Open University of the UK: three perspectives on black and ethnic minority student issues, in D. Nation and T. Evans (eds.) Reforming Open and Distance Education: Critical Reflections from Practice, Kogan Page, London, pp. 150-68. This chapter contains a discussion of how one particular institution came to undertake ethnic monitoring and highlights the issues that affect how it is carried out in practice.

3

G/NVQs and open learning

Roger Lewis

A simple argument underlies this chapter: providers of education and training need open learning if they are to deliver the G/NVQ framework. The requirements of the framework are outlined, especially as they affect candidates (the candidates being the individuals interested in gaining a G/NVQ). The implications of these requirements are then considered under the headings of support, management and materials. Whilst the descriptions may make the process seem complex, in practice it is simple, once the necessary structures are in place.

The term G/NVQ is used throughout this chapter to refer both to National Vocational Qualifications (NVQs) and General National Vocational Qualifications (G/NVQs). The main difference between the two qualifications is that G/NVQs have been designed for delivery in full-time education with limited access to the workplace. GNVQs provide a foundation of general skills, knowledge and understanding. Possession of a GNVQ will not imply competence in an occupation immediately on qualifying. In all other respects the two qualifications are similar, sharing the qualities of openness described in this chapter. GNVQs are likely to affect schools and colleges profoundly. For more information, see the National Council for Vocational Qualifications Information Note 3, updated as of 15 March 1993.

Requirements of the GNVQ framework

G/NVQs are designed to be 'open':

- To people of all ages.
- To people with special needs (defined broadly, covering disability, equal opportunities, difficulty in gaining access to appropriate workplace experience).
- To inspection, via the published national standards.
- To credit accumulation, allowing individuals to collect credit from different awards and in any sequence.

Furthermore, individuals can take their own time in accumulating credit.

In his chapter on 'Competence-based training using open and distance learning materials' (Chapter 4), R. Freeman emphasizes other ways in which the NVQ framework is open:

- Credit can be given for prior learning.
- Assessment is of outcomes, not of the processes through which individuals achieve these outcomes. This has the effect of freeing assessment from any
STUDENT DROP-OUT

ALAN WOODLEY AND MALCOLM PARLETT

Drop-out is a subject which has given rise to a great deal of discussion and argument within the Open University, much of which has, unfortunately, been ill-informed or dismissive. Clearly, this is a crucial issue which will demand continuing attention. In this article, by Alan Woodley and Malcolm Parlett of the Institute of Educational Technology, a great deal of basic information which has been collected on drop-out, during more than ten years of study, is presented and discussed in the form of a series of questions and answers.

While the authors are understandably at pains to point out the difficulties in interpreting this information, and the further study which is needed, this article should at the very least, form the basis for a much better informed examination of the problem.

Student drop-out has been a source of concern for members of central and regional Open University staff for many years. Various committees have discussed it, research papers have proliferated, numerous theories and hunches have been brought forward to explain the phenomenon, yet we seem no nearer to a solution.

This paper is an attempt to go back to basics. We have asked some down-to-earth questions and tried to provide straightforward answers, although this is not easy given the complex nature of the subject matter.

This report is not, and could not be, comprehensive. As the reader discovers as he or she goes through the following pages, each question provokes further questions. The number of issues raised tends to increase, even while some clarity is brought to bear on the first round of questions proposed. What is at issue, ultimately, are matters to do with University policy and procedure of the most fundamental kind. Pursuing each and every avenue of enquiry to its limit would result in our studying the entire work and thinking behind the Open University concept. So this is not the final, definitive work on drop-out that will resolve every question that could conceivably be raised about it. On the other hand we hope it provides a useful ground-clearing exercise, dispelling some of the more simplistic assertions made on the subject and pointing the way towards more sophisticated forms of thinking and analysis. These are required if the Open University is to make significant improvements in this area.

The term 'drop-out' is used very loosely and means different things to different people. Here we are concerned with performance in a given year rather than with graduation rates or rates of continuation from one academic year to the next. Even within a given year there are various ways of defining and measuring student performance. In considering the global question of student drop-out we have chosen to use the following four measures of performance which seem most suited to the Open University context:

(i) Non-completion of final registration
   This only concerns new undergraduates. The number not completing final registration is expressed as a percentage of those who were provisionally registered on 1 January.

(ii) Withdrawal rate
    Students are considered to have withdrawn if they finally registered but did not sit the end-of-year exam.

(iii) Failure rate
    Students are considered to have failed if they sat the end-of-year exam but did not gain a course credit.

(iv) Overall wastage rate
    This is the percentage of students who finally registered but who did not gain a course credit. In other words it includes both 'withdrawal' and 'failure'.
A further complication is that each of these four rates can be 'student-based' or 'course-based'. In the former case students are generally considered to be unsuccessful if they do not gain any course credit in a given year. Therefore a student who has withdrawn from three courses but has passed one is still classified as 'successful'. In the tables that follow we have specified whether they are course or student based, but it should be pointed out that the two types of analysis actually produce very similar results. The great majority of Open University students finally register for one course only (76 per cent of students in 1980) and those who register for more tend to either pass them all or pass none of them. In 1980 only 5 per cent of all finally registered students could be classified as 'drop-downs'—i.e. those who succeeded in some but not all of their Open University courses.

Table 1 summarizes the performance of Open University undergraduates in 1982 using the four measures outlined above. The main points that emerge are:

- nearly three out of every ten new students did not complete final registration
- one in four of the finally registered students did not sit any final examination
- one in seventeen of those who sat a final exam did not gain any credit
- three out of ten finally registered students gained no course credit
- the 'withdrawal rate', and consequently the 'overall wastage rate', was much greater for continuing students than for new students.

### TABLE 1  Undergraduate performance in 1982 (student-based)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Total</th>
<th>New students</th>
<th>Continuing students</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Non-completion of final registration</td>
<td>NA</td>
<td>22%</td>
<td>NA</td>
</tr>
<tr>
<td>(Base = all provisionally registered)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii) Withdrawal rate (Base = all finally registered)</td>
<td>24%</td>
<td>17%</td>
<td>27%</td>
</tr>
<tr>
<td>iii) Failure rate (Base = all who sat exam)</td>
<td>8%</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>iv) Overall wastage rate (Base = all finally registered)</td>
<td>29%</td>
<td>22%</td>
<td>32%</td>
</tr>
</tbody>
</table>

Although this is a perfectly legitimate question it is one that is very difficult to answer. Firstly one is faced with the problem of deciding which institutions should be used for comparison. When this has been decided there is often no performance data information available, or when there is information performance has been measured in ways that make direct comparisons impossible. We present below some of the data that is available relating to higher level courses using distance teaching.

- (i) Athabasca University (Canada)
  The average wastage rate for Athabasca courses is 71 per cent. However, this reduces to 42 per cent if the base is taken to be those students who submitted the first assignment.

- (ii) Open Learning Institute (Canada)
  The wastage rate for the 1982 summer semester was 32 per cent on their university level courses. This figure was based on those students who submitted the first assignment.

- (iii) The National University Extension Association (USA)
  A study based on single-subject courses of the completion rates on college and high school level courses produced the conclusion that six out of ten of those who enrolled completed their courses, and more than seven out of ten of those who submitted at least one assignment went on to complete all the written work set.
IV. NKI School (Norway).
The NKI School offers technical and vocational courses through distance teaching. Studies of a number of intakes show that between 65 and 80 per cent of students who enrolled completed at least one of their courses.

V. The Fernuniversitat (West Germany).
Unfortunately there seems to be no data on course performance. Figures for 1981 indicated that 42 per cent of their students discontinued their studies after their first year. At the Open University 42 per cent of the 1978 intake of provisionally registered new students did not register for any courses in 1980.

Although firm conclusions are impossible, it does seem that Open University students perform at least as well as those in other comparable distance teaching institutions.

Question 5: Is drop-out worse on higher level courses?
Table 2 shows the withdrawal, failure and overall wastage rates by level of course in 1981.
- The withdrawal rates for third and fourth level courses were much higher than for foundation courses but only slightly higher than for second level courses.
- The overall wastage rates show a similar pattern.
- The failure rates were fairly consistent across the various levels.

| TABLE 2 | Undergraduate performance in 1981, analysed by level of course (course-based) |
|-------------|----------------------------------|-----------------|----------------|
|             | Foundation | Second level | Third and fourth level |
| Withdrawal rate | 17%  | 28%  | 30%  |
| Failure rate | 8%  | 9%  | 9%  |
| Overall wastage rate | 24%  | 34%  | 37%  |

Question 6: Where does most drop-out occur?
In answer to the previous question we showed that the highest drop-out rates were on third and fourth level courses. However, if the Open University is concerned to reduce the volume of student drop-out we need to consider how students are distributed between the various course levels. Figure 1 shows the distribution of courses taken in 1981 and the numbers resulting in withdrawal or failure.

- In absolute numbers the amount of wastage was greater on second level courses than on third and fourth level courses.
- If one includes those who did not complete final registration, wastage among new students was almost as great as on second level courses in absolute numbers. If one also adds in the figures for continuing students, the wastage at foundation level was greater than at second level.
- If the Open University is anxious to reduce the volume of student drop-out there appears to be greater scope for improvement on foundation and second level courses than on third and fourth level courses.
Module A1 – Doing educational research and evaluation in ODL

Question 7: 'Do some faculties have higher drop-out rates than others?'

Table 3 shows the overall wastage rates for courses in each faculty in 1981.

- In 1981 the wastage rates for maths and technology courses were above average at each of the three levels.
- The wastage rates for arts and social science courses were consistently below average.

<table>
<thead>
<tr>
<th>Course</th>
<th>Foundation</th>
<th>Second level</th>
<th>Third and fourth level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td>22%</td>
<td>30%</td>
<td>32%</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>22%</td>
<td>33%</td>
<td>34%</td>
</tr>
<tr>
<td>Education</td>
<td>NA</td>
<td>31%</td>
<td>36%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>26%</td>
<td>39%</td>
<td>45%</td>
</tr>
<tr>
<td>Science</td>
<td>23%</td>
<td>32%</td>
<td>40%</td>
</tr>
<tr>
<td>Technology</td>
<td>26%</td>
<td>41%</td>
<td>41%</td>
</tr>
<tr>
<td>Total</td>
<td>24%</td>
<td>34%</td>
<td>37%</td>
</tr>
</tbody>
</table>

Question 8: 'Is the drop-out problem getting worse?'

We begin by comparing year by year since 1971 the rate at which new undergraduates did not complete final registration (Figure 2 overleaf).

- Between 1971 and 1973 the 'non-completion of final registration' rate rose from 19 per cent to 25 per cent.
- Between 1973 and 1978 this rate remained remarkably constant at around 25 per cent.
- Since 1978 the rate has increased in a step-wise fashion and currently stands at 29 per cent.

FIGURE 1 Undergraduate performance in 1981 analysed by level of course [raw numbers, course-based]
In Figure 3 we show the overall wastage rates for finally registered students at the various levels.

- The overall wastage rates for foundation courses have been relatively constant since 1973.
- The rates for third and fourth level courses increased each year between 1973 and 1980 but then fell in 1981 and again in 1982.
- The rates for second level courses increased each year between 1973 and 1977. The highest wastage rate was in 1979 and since then the rates have fallen.
- Since 1980 the overall wastage rates have declined for each course level.

**Figure 3** Overall wastage rates by level of course (course-based).

**Question 9: Why do students drop-out?**

Studies have shown that there are many factors which cause, or at least contribute to, student drop-out. The list given below is not exhaustive but serves to indicate the great range of possible factors.

1. **Course factors**
   (a) **Design**
       Badly written course units. E.g. objectives unclear, incorrect teaching sequences, over-use of jargon, boring style, etc.
   (b) **Workload**
       Course over-loaded given its credit rating.
   (c) **Level**
       Course found to be too difficult or insufficiently rigorous.
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(d) CONTENT
Content not as expected from the course description.

(e) BROADCASTS
Impossible to see the television programmes or hear the radio programmes due to lack of a receiver, no reception or ‘unsocial’ broadcast times. Broadcast content of little value.

(f) TUTORIAL
Tutorials too few in number, too distant, at inconvenient times, poor value when attended. Problems with individual tutors, who are unapproachable, unhelpful, slow to mark TMAs, give poor grades, etc.

(g) OTHER COURSE FACTORS
Late mailings, ambiguous assessment questions, frequent errors in course materials, faulty home experiment kits, etc.

2 Study environment factors

(a) PERSONAL/DOMESTIC
Illness of student or relative; change in marital status; having a baby; having to care for ageing relatives, moving house.

(b) WORK
Increase in working hours or responsibilities; more travelling, irregular working hours; sent abroad, became unemployed; changed job; started work.

(c) OTHER
Withdrawal of financial support; lack of encouragement by spouse or employer; loss of quiet place to study.

3 Motivational factors

(a) GOAL ACHIEVED
The student no longer needs to complete the course as original goal has been achieved. E.g. enrolled with the Open University to gain promotion and this has been obtained.

(b) GOAL CHANGED
E.g. enrolled with the Open University in order to become a teacher but now has decided to remain in present job.

(c) GOAL MET BETTER ELSEWHERE
E.g. student transfers to a course elsewhere which better meets his/her needs and circumstances.

(d) LACK OF IMPELUS
Student needs rest or time with family after several years of Open University study.

(e) POOR GRADES
Student gives up because unlikely to pass or unlikely to obtain pass with a good enough grade.

(f) NEVER WANTED CREDIT
Student taking course out of interest and does not wish to take exam.

4 Other factors

(a) Fear of exams
(b) Heavy workload caused by enrolling for too many courses
(c) Administrative errors
(d) ‘Accidents’ such as registering for the wrong course, turning up on the wrong day for the exam
(e) Effects of receiving a decision on entitlement to credit exemptions

It would clearly help to know to what extent each of these factors is the cause of drop-out. A number of researchers have approached this question by asking students why they dropped out and the results from two surveys are summarized below.
New students who did not finally register (Woodley and McIntosh)

The students were asked in an open-ended fashion to give their main reasons for not completing final registration. Of all the reasons given, 77 per cent were related to domestic and work circumstances, 21 per cent referred to study problems caused by the form and content of the courses and 2 per cent were administrative problems.

Drop-out from third level maths courses (Phythian and Clements)

The questionnaire gave a list of twelve possible reasons for drop-out. Students were asked to give a main reason and also a second and third reason if there were any. Domestic and job factors were given by 61 per cent of respondents as their main reason, 27 per cent mentioned problems with the courses themselves and 12 per cent gave motivational factors. When 'second reasons' were added in, the figures for the three categories were 53 per cent, 38 per cent and 11 per cent respectively.

Some people have concluded from results such as these that there is little the Open University can do to reduce student drop-out as it is mainly caused by factors beyond the University's control. However, there are a number of reasons for rejecting this point of view.

(i) The response rates for drop-out questionnaires are generally low (in the two studies mentioned above they were 51 per cent and 33 per cent respectively). This leaves great scope for response bias, particularly if those students who were experiencing academic difficulties were less willing to give their reasons for withdrawal.

(ii) Many researchers feel that the reasons given by respondents tend to be rationalizations. It seems likely that students who find the courses too difficult are able to explain away their academic failure by referring to other external pressures such as lack of time.

(iii) Even when the main reason for withdrawal has nothing to do with the Open University there are often other contributory factors. A typical expanded reason would be 'Work pressures meant that I had less time for Open University study – but I guess that I would still have stuck with the course if I had found it more interesting.'

Question 10: 'Are certain types of student more likely to drop out than others?'

To answer this question we have looked at the overall wastage rates in 1981, broken down by the key demographic characteristics that are held on the student file. We have separated new and continuing students in case certain characteristics were only related to wastage in the first year of study. We have deliberately chosen, for purposes of this question, not to examine the possible inter-relationships between the characteristics listed below — later in the report we attempt to look at the patterns of how these and other variables interact.

(a) **Sex**

Men were more likely than women to drop out. This was true for both new and continuing students.

<table>
<thead>
<tr>
<th>TABLE 4: Overall wastage rates in 1981, analysed by sex (course-based)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
</tbody>
</table>

(b) **Age**

In the case of age we have added together 1981 and 1982 figures to give sufficient numbers in the upper age groups on which to base our percentages. Overall wastage rates are shown in Figure 4.
Among new students the curve is approximately U-shaped with the very young and the very old being more likely to drop-out. Those aged thirty to thirty-nine were the most successful group. The findings from the Younger Student Pilot Scheme would suggest that if there was a group of students aged under twenty-one then the U-shape would become more symmetrical, since that study showed that some 35 per cent of finally registered younger students gained no course credit.

Among continuing students a similar pattern was found for those students aged twenty-one to fifty-nine, but those aged sixty-five and over were more in line with other age groups and those aged sixty to sixty-four were actually the most successful group.

![Graph showing overall wastage rates in 1981 and 1982, analysed by age (student-based)](image)

FIGURE 4 Overall wastage rates in 1981 and 1982, analysed by age (student-based)

(c) PREVIOUS EDUCATIONAL QUALIFICATIONS

Generally speaking, the lower a person’s previous educational qualifications the more likely he or she was to drop out. This held true for new and continuing students but the differences in wastage rates were more marked among new students.

<table>
<thead>
<tr>
<th></th>
<th>All students</th>
<th>New</th>
<th>Continuing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No formal qualifications</td>
<td>47%</td>
<td>43%</td>
<td>43%</td>
</tr>
<tr>
<td>CSE / RSA</td>
<td>44%</td>
<td>43%</td>
<td>44%</td>
</tr>
<tr>
<td>‘O’ levels</td>
<td>35%</td>
<td>29%</td>
<td>36%</td>
</tr>
<tr>
<td>GNC / OND</td>
<td>32%</td>
<td>27%</td>
<td>31%</td>
</tr>
<tr>
<td>‘A’ levels</td>
<td>29%</td>
<td>23%</td>
<td>29%</td>
</tr>
<tr>
<td>HNC / HND</td>
<td>27%</td>
<td>15%</td>
<td>13%</td>
</tr>
<tr>
<td>Teacher’s certificate</td>
<td>25%</td>
<td>13%</td>
<td>17%</td>
</tr>
<tr>
<td>University diploma</td>
<td>27%</td>
<td>15%</td>
<td>30%</td>
</tr>
<tr>
<td>University degree or equivalent</td>
<td>27%</td>
<td>13%</td>
<td>32%</td>
</tr>
</tbody>
</table>

(d) OCCUPATION

In the case of new students there were particularly high wastage rates among those in manual occupations (Categories 8 and 9), the retired and unemployed (Category 13) and those in institutions such as prisons and hospitals (Category 14). As with educational qualifications, the same patterns were found among continuing students but the variations were less marked. However, there was an exceptionally high wastage rate among those in institutions.
TABLE 6. Overall wastage rates in 1981, analysed by occupation (student-based)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>All students</th>
<th>New</th>
<th>Continuing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Housewives</td>
<td>25%</td>
<td>18%</td>
<td>27%</td>
</tr>
<tr>
<td>2 Armed forces</td>
<td>36%</td>
<td>28%</td>
<td>38%</td>
</tr>
<tr>
<td>3 Administrators and managers</td>
<td>30%</td>
<td>17%</td>
<td>32%</td>
</tr>
<tr>
<td>4 Education</td>
<td>26%</td>
<td>12%</td>
<td>30%</td>
</tr>
<tr>
<td>5 Professions and arts</td>
<td>33%</td>
<td>27%</td>
<td>35%</td>
</tr>
<tr>
<td>6 Qualified scientists and engineers</td>
<td>29%</td>
<td>15%</td>
<td>33%</td>
</tr>
<tr>
<td>7 Technical personnel</td>
<td>32%</td>
<td>22%</td>
<td>35%</td>
</tr>
<tr>
<td>8 Engineering, mining, construction, etc</td>
<td>43%</td>
<td>40%</td>
<td>45%</td>
</tr>
<tr>
<td>9 Metal, machines and allied trades</td>
<td>42%</td>
<td>41%</td>
<td>43%</td>
</tr>
<tr>
<td>10 Communication and transport</td>
<td>39%</td>
<td>34%</td>
<td>41%</td>
</tr>
<tr>
<td>11 Clerical and office</td>
<td>33%</td>
<td>26%</td>
<td>35%</td>
</tr>
<tr>
<td>12 Sales and personal service</td>
<td>35%</td>
<td>32%</td>
<td>37%</td>
</tr>
<tr>
<td>13 Retired, unemployed, etc.</td>
<td>38%</td>
<td>33%</td>
<td>39%</td>
</tr>
<tr>
<td>14 In institutions</td>
<td>48%</td>
<td>38%</td>
<td>57%</td>
</tr>
</tbody>
</table>

(e) REGION

Among new students the highest wastage rate was in the London region, followed by Northern Ireland and Wales. The East Midlands had the lowest wastage rate.

Among continuing students London again had the highest rate, followed by Wales. Those in the West Midlands fared best.

TABLE 7. Overall wastage rates in 1981, analysed by region (student-based)

<table>
<thead>
<tr>
<th>Region</th>
<th>All students</th>
<th>New</th>
<th>Continuing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 London</td>
<td>37%</td>
<td>29%</td>
<td>39%</td>
</tr>
<tr>
<td>2 South</td>
<td>30%</td>
<td>22%</td>
<td>33%</td>
</tr>
<tr>
<td>3 South West</td>
<td>30%</td>
<td>23%</td>
<td>32%</td>
</tr>
<tr>
<td>4 West Midlands</td>
<td>29%</td>
<td>24%</td>
<td>30%</td>
</tr>
<tr>
<td>5 East Midlands</td>
<td>28%</td>
<td>17%</td>
<td>31%</td>
</tr>
<tr>
<td>6 East Anglia</td>
<td>28%</td>
<td>20%</td>
<td>31%</td>
</tr>
<tr>
<td>7 Yorkshire</td>
<td>31%</td>
<td>21%</td>
<td>34%</td>
</tr>
<tr>
<td>8 North West</td>
<td>29%</td>
<td>21%</td>
<td>32%</td>
</tr>
<tr>
<td>9 North</td>
<td>29%</td>
<td>20%</td>
<td>32%</td>
</tr>
<tr>
<td>10 Wales</td>
<td>23%</td>
<td>25%</td>
<td>36%</td>
</tr>
<tr>
<td>11 Scotland</td>
<td>31%</td>
<td>23%</td>
<td>34%</td>
</tr>
<tr>
<td>12 Northern Ireland</td>
<td>33%</td>
<td>27%</td>
<td>34%</td>
</tr>
<tr>
<td>13 South East</td>
<td>30%</td>
<td>23%</td>
<td>32%</td>
</tr>
</tbody>
</table>

(f) CREDITS HELD

There was a very strong relationship between the number of credits (including credit exemptions) held by continuing students at the beginning of the year and their chance of gaining some course credit during that year. In general, the more credits held, the greater were the chances of success. However, once an ordinary degree had been obtained (6 credits), there was a dramatic reversal of this trend. Those proceeding directly to an honours degree had a very high wastage rate (42 per cent) and even those approaching an honours degree (8 credits) only had moderate success rates. (See Table 8 opposite)

(g) YEAR OF ENTRY

There was an almost perfect relationship between year of entry and wastage rates. The longer students had been in the Open University system the less likely they were to gain a course credit. (See Table 9 opposite)
TABLE 8 Overall wastage rates of continuing students in 1981, analysed by the number of credits held at the beginning of the year (student-based)

<table>
<thead>
<tr>
<th>Credits Held</th>
<th>Continuing Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>75%</td>
</tr>
<tr>
<td>½-1 credits</td>
<td>19%</td>
</tr>
<tr>
<td>1½-2 credits</td>
<td>37%</td>
</tr>
<tr>
<td>2½-3 credits</td>
<td>33%</td>
</tr>
<tr>
<td>3½-4 credits</td>
<td>28%</td>
</tr>
<tr>
<td>5½-6 credits</td>
<td>25%</td>
</tr>
<tr>
<td>6½-7 credits</td>
<td>42%</td>
</tr>
<tr>
<td>7½-8 credits</td>
<td>30%</td>
</tr>
<tr>
<td>8 or more</td>
<td>33%</td>
</tr>
</tbody>
</table>

TABLE 9 Overall wastage rates in 1981, analysed by year of entry (student-based)

<table>
<thead>
<tr>
<th>Year of entry</th>
<th>All Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>55%</td>
</tr>
<tr>
<td>1972</td>
<td>50%</td>
</tr>
<tr>
<td>1973</td>
<td>46%</td>
</tr>
<tr>
<td>1974</td>
<td>48%</td>
</tr>
<tr>
<td>1975</td>
<td>40%</td>
</tr>
<tr>
<td>1976</td>
<td>23%</td>
</tr>
<tr>
<td>1977</td>
<td>31%</td>
</tr>
<tr>
<td>1978</td>
<td>30%</td>
</tr>
<tr>
<td>1979</td>
<td>29%</td>
</tr>
<tr>
<td>1980</td>
<td>30%</td>
</tr>
<tr>
<td>1981</td>
<td>23%</td>
</tr>
</tbody>
</table>

WORKLOAD

Wastage rates were related to the number of course credits attempted by students in a given year, but, as the figures for continuing students in 1980 show (Table 10), the pattern is a complicated one. If we take as our criterion the percentage gaining no credits, i.e. the overall wastage rate, then those taking only one half credit fared worst. If we exclude this group, then there appeared to be a general tendency for wastage rates to increase with workload. Those taking a full plus a half credit were an exception to this rule, as they were the most successful group.

If we take as our criterion the percentage gaining credits on all courses for which they registered, the position changes somewhat. Those taking one full credit emerge as the most successful group. Those taking four half credits were the least successful, followed by those taking three courses (HHH and FHH)∗.

TABLE 10 The performance of continuing students in 1980, analysed by initial workload (student based, horizontal %)

<table>
<thead>
<tr>
<th>Workload†</th>
<th>Pass all</th>
<th>Pass some</th>
<th>Pass none</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>53%</td>
<td>-</td>
<td>47%</td>
</tr>
<tr>
<td>F</td>
<td>70%</td>
<td>-</td>
<td>30%</td>
</tr>
<tr>
<td>HH</td>
<td>42%</td>
<td>21%</td>
<td>38%</td>
</tr>
<tr>
<td>FH</td>
<td>61%</td>
<td>26%</td>
<td>23%</td>
</tr>
<tr>
<td>HHH</td>
<td>35%</td>
<td>33%</td>
<td>32%</td>
</tr>
<tr>
<td>FF</td>
<td>45%</td>
<td>22%</td>
<td>33%</td>
</tr>
<tr>
<td>FHH</td>
<td>33%</td>
<td>30%</td>
<td>37%</td>
</tr>
<tr>
<td>HHHH</td>
<td>21%</td>
<td>40%</td>
<td>40%</td>
</tr>
</tbody>
</table>

†F = full credit course, H = half credit course
(i) **PREREQUISITE COURSES**

Certain Open University courses have ‘recommended prerequisites’. These are courses that students are advised to take beforehand. One might hypothesize that those students who did not follow this advice would be more likely to drop out.

Some of the recommendations are quite complex. For instance, for D305 they are ‘D100/D101 and D5261 or D263 or E362 or E201’. In order to simplify the analysis we have concentrated on those courses which have only one recommended prerequisite course and compared the wastage rates of those who had and had not successfully completed it (Table 11). As those who had not passed the prerequisite course tended to be few in number we combined the figures for 1980 and 1981 whenever possible.

On twenty-five of the twenty-nine courses examined, those who had passed the prerequisite course were more successful than those who had not. In 18 of these 25 courses, the difference in wastage rates was greater than 10%.

**TABLE 11** Overall wastage rates on courses with one recommended prerequisite course analysed by whether students had previously passed this course (course-based)

<table>
<thead>
<tr>
<th>Course</th>
<th>Recommended prerequisite</th>
<th></th>
<th>Whether passed the prerequisite course</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A306</td>
<td>A241</td>
<td></td>
<td>Yes</td>
<td>55%</td>
</tr>
<tr>
<td>A309</td>
<td>A100/A101</td>
<td></td>
<td>Yes</td>
<td>31%</td>
</tr>
<tr>
<td>A402</td>
<td>A303</td>
<td></td>
<td>Yes</td>
<td>36%</td>
</tr>
<tr>
<td>D207</td>
<td>D100/D101</td>
<td></td>
<td>Yes</td>
<td>29%</td>
</tr>
<tr>
<td>D222</td>
<td>D100/D101</td>
<td></td>
<td>Yes</td>
<td>56%</td>
</tr>
<tr>
<td>D206</td>
<td>D100/D101</td>
<td></td>
<td>Yes</td>
<td>23%</td>
</tr>
<tr>
<td>D303</td>
<td>D5261</td>
<td></td>
<td>Yes</td>
<td>23%</td>
</tr>
<tr>
<td>D323</td>
<td>D222</td>
<td></td>
<td>Yes</td>
<td>40%</td>
</tr>
<tr>
<td>D324</td>
<td>D222</td>
<td></td>
<td>Yes</td>
<td>37%</td>
</tr>
<tr>
<td>D306</td>
<td>D204</td>
<td></td>
<td>Yes</td>
<td>30%</td>
</tr>
<tr>
<td>E341</td>
<td>D100/D101</td>
<td></td>
<td>Yes</td>
<td>52%</td>
</tr>
<tr>
<td>E223</td>
<td>E222</td>
<td></td>
<td>Yes</td>
<td>21%</td>
</tr>
<tr>
<td>M201</td>
<td>M100/M101</td>
<td></td>
<td>Yes</td>
<td>35%</td>
</tr>
<tr>
<td>M202</td>
<td>M100/M101</td>
<td></td>
<td>Yes</td>
<td>22%</td>
</tr>
<tr>
<td>M212</td>
<td>M211</td>
<td></td>
<td>Yes</td>
<td>33%</td>
</tr>
<tr>
<td>M231</td>
<td>M100/M101</td>
<td></td>
<td>Yes</td>
<td>53%</td>
</tr>
<tr>
<td>M332</td>
<td>M331</td>
<td></td>
<td>Yes</td>
<td>38%</td>
</tr>
<tr>
<td>S202</td>
<td>S100/S101</td>
<td></td>
<td>Yes</td>
<td>26%</td>
</tr>
<tr>
<td>S266</td>
<td>S100/S101</td>
<td></td>
<td>Yes</td>
<td>30%</td>
</tr>
<tr>
<td>S267</td>
<td>S100/S101</td>
<td></td>
<td>Yes</td>
<td>34%</td>
</tr>
<tr>
<td>S293</td>
<td>S100/S101</td>
<td></td>
<td>Yes</td>
<td>39%</td>
</tr>
<tr>
<td>S246</td>
<td>S100/S101</td>
<td></td>
<td>Yes</td>
<td>24%</td>
</tr>
<tr>
<td>S247</td>
<td>S100/S101</td>
<td></td>
<td>Yes</td>
<td>28%</td>
</tr>
<tr>
<td>S334</td>
<td>S100/S101</td>
<td></td>
<td>Yes</td>
<td>46%</td>
</tr>
<tr>
<td>S337</td>
<td>S333</td>
<td></td>
<td>Yes</td>
<td>46%</td>
</tr>
<tr>
<td>S354</td>
<td>S100/S101</td>
<td></td>
<td>Yes</td>
<td>30%</td>
</tr>
<tr>
<td>T232</td>
<td>TM281</td>
<td></td>
<td>Yes</td>
<td>8%</td>
</tr>
<tr>
<td>T341</td>
<td>MDT241</td>
<td></td>
<td>Yes</td>
<td>40%</td>
</tr>
<tr>
<td>T352</td>
<td>T5251</td>
<td></td>
<td>Yes</td>
<td>48%</td>
</tr>
</tbody>
</table>

*means the percentage is based on less than 25 students.

(ii) **STUDENTS WHO SKIP LEVELS**

Although students who have passed a foundation course are now allowed to proceed directly to a third level course without attempting any at second level, it was felt that they might be more likely to drop out if they did so. The first column of Table 12 shows the wastage rates of students who entered the University in 1980 but were already taking third level courses in 1981. For comparison we also show the wastage rates for those who entered in 1979 and 1978, the majority of whom would have already taken a second level course.
Those going straight from foundation to third level would seem to be at a disadvantage on Mathematics, Science, Social Science and, to a lesser extent, Education courses. There was no such problem with Arts and Technology courses.

**TABLE 12. Overall wastage rates on third level courses in 1981, analysed by faculty and year of entry (course-based)**

<table>
<thead>
<tr>
<th>Faculty</th>
<th>1980</th>
<th>1979</th>
<th>1978</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td>27%</td>
<td>30%</td>
<td>29%</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>49%</td>
<td>24%</td>
<td>31%</td>
</tr>
<tr>
<td>Education</td>
<td>43%</td>
<td>34%</td>
<td>39%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>56%</td>
<td>48%</td>
<td>38%</td>
</tr>
<tr>
<td>Science</td>
<td>56%</td>
<td>35%</td>
<td>34%</td>
</tr>
<tr>
<td>Technology</td>
<td>35%</td>
<td>39%</td>
<td>38%</td>
</tr>
</tbody>
</table>

**Question 11.** *Do drop-out rates vary much between courses?*

Table 13 shows that in 1981 the highest wastage rate for a course was 71 per cent and the lowest 17 per cent, a range of 54 per cent. There were considerable variations in wastage rates in all faculties and at each course level.

**TABLE 13. The range in overall wastage rates in 1981, analysed by faculty and course level (course-based)**

<table>
<thead>
<tr>
<th>Highest course wastage rate</th>
<th>Lowest course wastage rate</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Second level courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts</td>
<td>44%</td>
<td>21%</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>49%</td>
<td>23%</td>
</tr>
<tr>
<td>Education</td>
<td>41%</td>
<td>17%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>52%</td>
<td>24%</td>
</tr>
<tr>
<td>Science</td>
<td>51%</td>
<td>23%</td>
</tr>
<tr>
<td>Technology</td>
<td>52%</td>
<td>24%</td>
</tr>
<tr>
<td>Total</td>
<td>52%</td>
<td>17%</td>
</tr>
<tr>
<td>(b) Third and fourth level courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts</td>
<td>50%</td>
<td>17%</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>45%</td>
<td>23%</td>
</tr>
<tr>
<td>Education</td>
<td>45%</td>
<td>30%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>71%</td>
<td>31%</td>
</tr>
<tr>
<td>Science</td>
<td>54%</td>
<td>27%</td>
</tr>
<tr>
<td>Technology</td>
<td>56%</td>
<td>17%</td>
</tr>
<tr>
<td>Total</td>
<td>71%</td>
<td>17%</td>
</tr>
</tbody>
</table>

**Question 12.** *What types of course have high drop-out rates?*

A course’s drop-out rate is likely to be affected by factors such as the intrinsic difficulty of the subject matter, how well the course has been designed and the amount and quality of support provided by regional staff. However, no satisfactory quantitative measures exist for these sorts of variables — influential though they are likely to be. Instead we have confined our study to certain more concrete features of courses to see whether they are related to drop-out rates. We have already shown that drop-out rates are greater in certain faculties and on higher level courses, and now we go on to consider other factors such as a course’s credit rating and whether or not it has a summer school.

In this analysis we make use of a ‘course presentation data-base’. Between 1971 and 1981 the Open University made 873 course presentations and each of these is represented as a single case on the data-base. For a given course presentation, say A100 in 1973, we draw together the drop-out rate and numerous other pieces of information concerning the nature of the course itself (e.g. whether it had a summer school) and the characteristics of the students taking that course (e.g. what proportion were teachers).
(b) CREDIT RATING

Half credit courses produced higher wastage rates than did full credit ones (Table 13). This difference was found in each faculty but was most marked in the case of Technology, Arts and Mathematics. Foundation courses are all full credit courses but the pattern was repeated for second-level courses and even more so for third and fourth level courses.

<table>
<thead>
<tr>
<th>TABLE 13</th>
<th>Overall wastage rates 1971-81, analysed by credit rating (course-based)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full credit</td>
</tr>
<tr>
<td>All courses</td>
<td>28%</td>
</tr>
<tr>
<td>Faculty</td>
<td></td>
</tr>
<tr>
<td>Arts</td>
<td>25%</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>30%</td>
</tr>
<tr>
<td>Education</td>
<td>28%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>32%</td>
</tr>
<tr>
<td>Science</td>
<td>29%</td>
</tr>
<tr>
<td>Technology</td>
<td>24%</td>
</tr>
</tbody>
</table>

(b) SUMMER SCHOOL

On average those courses with summer schools had lower wastage rates than those without (Table 14). This finding was consistent across faculties, course levels and credit ratings. The differences in wastage rates were greatest in Mathematics, Arts and Science and for all third and fourth level courses.

<table>
<thead>
<tr>
<th>TABLE 14</th>
<th>Overall wastage rates 1971-81, analysed by whether courses had a summer school (course-based)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Summer school?</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>All courses</td>
<td>31%</td>
</tr>
<tr>
<td>Faculty</td>
<td></td>
</tr>
<tr>
<td>Arts</td>
<td>23%</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>28%</td>
</tr>
<tr>
<td>Education</td>
<td>26%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>33%</td>
</tr>
<tr>
<td>Science</td>
<td>33%</td>
</tr>
<tr>
<td>Technology</td>
<td>35%</td>
</tr>
</tbody>
</table>

(c) INTER-FACULTY COURSES

Inter-faculty courses (i.e. those with more than one faculty letter in the course code) had slightly higher wastage rates than other courses (Table 15). This held true at each course level and credit rating but it varied from faculty to faculty. It was most marked in the Science faculty but in the case of Technology and Social Science the position was actually reversed.

<table>
<thead>
<tr>
<th>TABLE 15</th>
<th>Overall wastage rates 1971-81, analysed by whether courses were inter-faculty (course-based)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inter-faculty</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>All courses</td>
<td>36%</td>
</tr>
<tr>
<td>Faculty</td>
<td></td>
</tr>
<tr>
<td>Arts</td>
<td>35%</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>36%</td>
</tr>
<tr>
<td>Education</td>
<td>35%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>42%</td>
</tr>
<tr>
<td>Science</td>
<td>43%</td>
</tr>
<tr>
<td>Technology</td>
<td>37%</td>
</tr>
</tbody>
</table>
Module A1 – Doing educational research and evaluation in ODL

(d) THE NUMBER OF STUDENTS TAKING THE COURSE

The relationship between wastage rates and the number of students taking the course was calculated using the Pearson correlation technique (Table 16). In this and subsequent tables correlation coefficients are only given if they were significant at the 5 per cent level. It was clearly the case that wastage rates tended to decrease as student numbers increased. This was true for each faculty, course level and credit rating.

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Level</th>
<th>All courses</th>
<th>-0.35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td>Level</td>
<td>-0.41</td>
<td>-0.54</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>Level</td>
<td>-0.48</td>
<td>-0.22</td>
</tr>
<tr>
<td>Education</td>
<td>Level</td>
<td>-0.49</td>
<td>-0.29</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Level</td>
<td>-0.40</td>
<td>-0.23</td>
</tr>
<tr>
<td>Science</td>
<td>Level</td>
<td>-0.22</td>
<td>-0.23</td>
</tr>
<tr>
<td>Technology</td>
<td>Level</td>
<td>-0.30</td>
<td>-0.20</td>
</tr>
</tbody>
</table>

(e) THE AGE OF THE COURSE

There was a small but significant tendency for wastage rates to increase as courses got older (Table 17). However, this relationship was not found to hold for Arts and Science courses or for foundation courses.

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Level</th>
<th>All courses</th>
<th>+0.15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td>Level</td>
<td>+0.19</td>
<td>+0.18</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>Level</td>
<td>+0.44</td>
<td>+0.09</td>
</tr>
<tr>
<td>Education</td>
<td>Level</td>
<td>+0.20</td>
<td>+0.16</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Level</td>
<td>+0.16</td>
<td>+0.16</td>
</tr>
</tbody>
</table>

In an attempt to look at this question more closely, we examined the wastage rates of the 120 courses that had had at least three presentations. Comparisons were made between wastage rates in successive years on the same course. The changes were categorized as follows:

- Better = Wastage rate decreased by 2 per cent or more
- Same = Wastage rate varied by less than plus or minus 2 per cent
- Worse = Wastage rate increased by 2 per cent or more

The results are given in Figure 5 and show that wastage rates increased between the first and second presentation for well over half of the courses. When we look at all three presentations we see that the most common pattern was a successive increase in wastage rates (35 courses).

![Figure 5: Course wastage rates over three presentations](image-url)
These results are particularly intriguing. As elsewhere in this part of the report, we are not dwelling on possible explanations. However, further research — probably of a qualitative sort — might reveal whether multiple presentations of courses led cumulatively to lack of attention on the part of presentation course teams, less adequate tutor-marked assignments, tutor boredom, or some combination of factors which represent a decline in quality. Alternatively, students taking courses in later years may be less enthusiastic about it. Doubtless readers will generate a variety of explanations. We discuss the hazards of interpreting findings such as these in the concluding section of the article.

(f) THE NUMBER OF TELEVISION AND RADIO PROGRAMMES

The more television programmes there were associated with the course, the lower was the wastage rate (Table 18). This was true for each faculty except Technology and at each course level except foundation. Full credit courses tend to have more television programmes than do half credit ones and we have already shown that full credit courses have lower wastage rates. Therefore, perhaps the most important finding is that the relationship was still present even when one controlled for credit rating.

A similar overall relationship was found in the case of the number of associated radio programmes (or audio-cassettes if these were used instead). No relationship was found for Science and foundation courses. More importantly the correlation coefficient for radio was not significant among full credit courses and was much lower than for television among half credit courses.

<table>
<thead>
<tr>
<th>TABLE 18</th>
<th>Correlations between overall wastage rates and the number of TV and radio programmes, 1971-1981 (course-based)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV Radio</td>
<td>Level Foundation</td>
</tr>
<tr>
<td>All courses</td>
<td>.38</td>
</tr>
<tr>
<td>Faculty Arts</td>
<td>.51</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>.57</td>
</tr>
<tr>
<td>Education Mathematics</td>
<td>.56</td>
</tr>
<tr>
<td>Science Technology</td>
<td>.33</td>
</tr>
</tbody>
</table>

(g) THE NUMBER OF SET BOOKS

The greater the number of set text books associated with the course, the lower was the wastage rate (Table 19). This was true for each faculty except Mathematics, for each course level and for each credit rating.

<table>
<thead>
<tr>
<th>TABLE 19</th>
<th>Correlation between overall wastage rates and the number of set books, 1971-1981 (course-based)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All courses</td>
<td>.43</td>
</tr>
<tr>
<td>Faculty Arts</td>
<td>.48</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>.43</td>
</tr>
<tr>
<td>Education Mathematics</td>
<td>.38</td>
</tr>
<tr>
<td>Science Technology</td>
<td>.33</td>
</tr>
<tr>
<td></td>
<td>.21</td>
</tr>
<tr>
<td></td>
<td>.32</td>
</tr>
</tbody>
</table>

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In answer to question 10 we have shown that certain types of student are more likely than others to drop out. It seems likely, therefore, that some of the variation in course wastage rates can be explained by the fact that certain courses attract more “high risk” students than others. We decided to examine this possibility using the course presentation database, which also contained information on the characteristics of the students taking a given course in a given year.

As many of the variables are inter-related we needed to use a multi-variate technique to arrive at a working definition of a “high risk” student population. We therefore performed a step-wise multiple regression on all second, third and fourth level courses, using the course’s pass rate (i.e., the converse of the overall wastage rate) as the dependent variable and a variety of student population characteristics as independent variables in an explanatory equation. A multiple correlation coefficient of .56 was achieved, which means that we could explain approximately 31 per cent of the variability in course pass rates using this equation. The best single predictor of a course’s pass rate was the percentage of its students who were in their fifth or more year of Open University study. A simple interpretation of the whole equation would be that a course is most likely to have a low pass rate if it has large numbers of students in their fifth or more year of Open University study and it has many students taking two or more courses and it has few housewives and it has many students from the London region.

We have also shown that course wastage rates are related to certain features of the courses themselves. We therefore performed a similar exercise using course characteristics as independent variables. The resulting equation achieved a multiple correlation coefficient of .63, which meant that 40 per cent of the variability in course pass rates was explained. Using this equation one would predict that a course would have a very high wastage rate if it had a high credit, if it had no summer school, if it had an M in the course code, it had been presented for several years and that it was a third or fourth level course.

The next stage of our analysis was to classify each of the course presentations as “high”, “medium” and “low” risk, both in terms of their student population and their course characteristics. This was achieved by calculating expected pass rates using the two equations, ranking them, and then dividing them into three equal-sized groups. We then examined the inter-relationship between these classifications as shown in Table 20.

**TABLE 20: High, medium and low risk course presentations in terms of course and student characteristics**

<table>
<thead>
<tr>
<th>Course characteristics</th>
<th>(a) Actual pass rates</th>
<th>(b) Number of course presentations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High risk</td>
<td>Medium risk</td>
</tr>
<tr>
<td><strong>Student Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High risk</td>
<td>64%</td>
<td>62%</td>
</tr>
<tr>
<td>Medium risk</td>
<td>60%</td>
<td>66%</td>
</tr>
<tr>
<td>Low risk</td>
<td>60%</td>
<td>66%</td>
</tr>
<tr>
<td><strong>All</strong></td>
<td>57%</td>
<td>65%</td>
</tr>
</tbody>
</table>

- To a certain extent one can predict a course’s pass rate if one knows something about the characteristics of the students taking it or if one uses features of the course itself.
- Greater differentiation is possible if one uses both types of information. The highest pass rates were for those course presentations which had “low risk”.
student populations and course characteristics (average pass rate = 72 per cent). The lowest occurred when student and course characteristics were both ‘high risk’ (average pass rate = 54 per cent).

● As shown by the number of course presentations in each cell, those courses with ‘high risk’ characteristics (e.g. half credit, no summer school) tended to have ‘high risk’ student populations (e.g. high proportions in their fifth or more year of Open University study and taking two or more courses). Conversely those courses with ‘low risk’ characteristics seemed to attract ‘low risk’ student populations.

To try to answer this question we performed a further stepwise multiple regression which used both course and student characteristics as possible explanatory variables.

An equation was derived with a multiple correlation coefficient of 68, which meant that it explained 44 per cent of the variability in course pass rates. On this basis a course would be expected to have a very low pass rate if it was a half credit and it had a high proportion of students in their fifth or more year of study and it had an A in the course code and it had no summer school and it had been presented for several years and it had a low proportion of housewives and it had a high proportion of students whose educational qualifications were below ‘A’ level.

By feeding each course presentation into the equation it was possible to derive a predicted course pass rate. Obviously some courses would do very well as they had all the ‘right’ characteristics (i.e. they were full credit, had few students in their fifth or more year of study, etc.) and others would emerge with a low score.

What we wanted to do then was to see whether the general decline in pass rates was wholly or partly due to the fact that in later years the courses were less likely to display the ‘right’ characteristics.

In Table 21 we show for each of the years between 1973 and 1980 how the courses fell in terms of predicted pass rates. It is clear that over the years there was indeed a considerable movement from courses with the ‘right’ characteristics to those with the ‘wrong’ ones.

### TABLE 21 The number of courses falling into each ‘predicted pass rate’ category, analysed by year

<table>
<thead>
<tr>
<th>Year</th>
<th>73</th>
<th>74</th>
<th>75</th>
<th>76</th>
<th>77</th>
<th>78</th>
<th>79</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Predicted pass rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70% and over</td>
<td>23</td>
<td>33</td>
<td>16</td>
<td>15</td>
<td>13</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>65-69%</td>
<td>11</td>
<td>18</td>
<td>24</td>
<td>22</td>
<td>24</td>
<td>21</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>60-64%</td>
<td>2</td>
<td>5</td>
<td>16</td>
<td>27</td>
<td>33</td>
<td>33</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>55-59%</td>
<td>-</td>
<td>1</td>
<td>10</td>
<td>17</td>
<td>22</td>
<td>24</td>
<td>26</td>
<td>29</td>
</tr>
<tr>
<td>54% or under</td>
<td>-</td>
<td>2</td>
<td>6</td>
<td>16</td>
<td>15</td>
<td>19</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>36</td>
<td>67</td>
<td>68</td>
<td>87</td>
<td>98</td>
<td>107</td>
<td>111</td>
<td>118</td>
</tr>
</tbody>
</table>

The question remains of how much this movement can account for the overall decline in pass rates. In Table 22 we show the actual average pass rate for the courses shown in Table 21. The figures show that in each year the pass rates declined in line with the predictions but that even within each predicted pass rate category there was a tendency for pass rates to decline over time. Clearly our model was not going to explain all of the decline in pass rates, so we had to calculate how much it appeared to explain.

In 1973 twenty-three courses fell in the top category, eleven in the second and two in the third. We took this distribution and applied it to the pass rates in subsequent years within each category, thus controlling for the effects of course movements between the categories. This produced the ‘adjusted’ pass rates for
each year shown in the last row of Table 22. The fall in pass rates from 1973 to 1980 was 73.9 – 59.7 = 13.9. When one controls for the effect of the movement of courses between the categories then this becomes 73.6 – 69.9 = 3.7. One could therefore say that the model explains \( \frac{13.9 - 3.7}{3.7} \times 100 = 73 \) per cent of the decline in pass rates between 1973 and 1980.

### TABLE 22. The average pass rate for courses falling into each ‘predicted pass rate’ category, analysed by year

<table>
<thead>
<tr>
<th>Year</th>
<th>73</th>
<th>74</th>
<th>75</th>
<th>76</th>
<th>77</th>
<th>78</th>
<th>79</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predicted pass rate</td>
<td>70% and over</td>
<td>75.0</td>
<td>73.6</td>
<td>73.1</td>
<td>74.2</td>
<td>76.9</td>
<td>75.3</td>
<td>72.6</td>
</tr>
<tr>
<td></td>
<td>65-59%</td>
<td>72.6</td>
<td>69.6</td>
<td>68.2</td>
<td>67.5</td>
<td>66.9</td>
<td>64.8</td>
<td>63.6</td>
</tr>
<tr>
<td></td>
<td>60-64%</td>
<td>62.5</td>
<td>63.6</td>
<td>64.6</td>
<td>64.6</td>
<td>62.2</td>
<td>62.0</td>
<td>61.0</td>
</tr>
<tr>
<td></td>
<td>55-59%</td>
<td>55.5</td>
<td>60.0</td>
<td>58.8</td>
<td>61.2</td>
<td>56.7</td>
<td>56.8</td>
<td>54.8</td>
</tr>
<tr>
<td></td>
<td>54% or under</td>
<td>-</td>
<td>-</td>
<td>60.2</td>
<td>57.2</td>
<td>53.5</td>
<td>52.3</td>
<td>51.7</td>
</tr>
<tr>
<td>Total</td>
<td>73.8</td>
<td>71.2</td>
<td>67.4</td>
<td>65.5</td>
<td>64.0</td>
<td>61.7</td>
<td>60.5</td>
<td>59.7</td>
</tr>
<tr>
<td>Adjusted for 1973 distribution</td>
<td>73.6</td>
<td>71.8</td>
<td>71.4</td>
<td>71.6</td>
<td>73.0</td>
<td>71.4</td>
<td>69.2</td>
<td>69.9</td>
</tr>
</tbody>
</table>

**Question 15** What are some of the principal conclusions?

1. **Problems need to be ranked according to their actual seriousness**

   Much concern about drop-out was produced by the steadily worsening situation on third level courses up until 1980. However, we now know that the particular figures improved in 1981 and 1982. The Open University might be better advised to concentrate its efforts at foundation and second level as this is where the greatest bulk of drop out occurs. The situation among new students is particularly disturbing as the proportion who do not complete final registration appears to be increasing. Furthermore, the provisional registration period for new students, while justifiable on educational and other grounds, does serve to disguise the true size of first year drop out. In 1982, 44 per cent of new students did not gain any course credit.

2. **There have been recent changes that stimulate new questions**

   When the multi-variate model that was developed to explain the increasing drop-out rates between 1973 and 1980 was applied to 1981 data, it did not predict the fall in drop-out rates that actually took place. Perhaps the most plausible hypothesis concerning the improvements in 1981 and 1982 is that it was caused by the large increase in student fees. On this argument students who were really not sure whether to take a course or not, and hence would perhaps have been more “at risk” if they had done so, were perhaps finally dissuaded by the large fees from embarking on study. Moreover, those who actually paid the fees were likely to be more motivated to succeed by the fact that they had paid such a large amount of money. The hypothesis is difficult to test from a research point of view. One possibility might be to look at the success rates of groups of students who had their fees paid for them to see whether these changed over the relevant years.

3. **Caution is necessary in interpreting the present findings**

   We have shown that certain features of courses are associated with high drop-out rates and a natural suggestion to make would be that new courses should avoid these features. However, certain prior questions have to be asked:
   
   (a) Is the relationship a simple causal one?
   (b) What would be the knock-on effects of such changes?
   (c) Is the relationship strong enough to warrant action?
   (d) Can the Open University actually make these changes?

   Let us consider two examples in terms of these four questions.
CREDIT RATING
Half credit courses have higher drop-out rates than full credit ones and therefore one suggestion might be to phase them out. However:
(a) Half credit courses seem to attract ‘high risk’ students such as those who have been in the Open University system for many years, be they perpetual students’, those trying to improve their honours classification, persistent failers or whatever.
(b) Half credit courses are not available to such students, they are likely to drop out from full credit courses or not register at all.
(c) The differences in drop-out rates between half and full credit courses is consistent across faculties and levels but is never huge.
(d) To switch to full credit courses would have profound effects on the faculties and the variety of courses available to students.

SUMMER SCHOOL
Courses with summer schools have lower drop-out rates but:
(a) It may be the case that such courses attract ‘low risk’ students. Those whose personal situations enable them to find the time and money to attend summer school may also be advantaged in other ways. The summer school may not be the direct cause of low drop-out rates.
(b) If all courses had summer schools there might be many students who would be unable to continue with their studies.
(c) Again the difference in drop-out rates between courses with and without summer schools is not huge.
(d) There is presumably a limit to how many summer schools the Open University can run.

Similar ancillary points can be made with the majority of the findings in this report. Neat, conclusive ‘answers’ may be sought. Unfortunately, reality is more complicated than that.

4. A more sophisticated method of identifying ‘at risk’ students is needed
We have shown that drop-out is related to such variables as sex, age, occupation, educational qualifications, and choice of course. A multi-variate model could be constructed which could identify ‘high risk’ students with some degree of accuracy. These students could then be singled out for special attention before and during their studies.

5. A recognition is required of the complex personal equations operating with individuals
In this paper we have tried to take a system-wide look at student drop-out. This global approach has led us to consider general trends, patterns and explanatory models and to make suggestions for changes to the system as a whole. However, if we are to reach a more complete understanding of the drop-out process, we must complement this approach with more detailed micro-analysis. On the individual student level we need to know far more about the psychological processes involved in becoming, then ceasing to be, an Open University student. By looking closely at individual courses and how students study them, we can perhaps make more detailed and concrete proposals for change.

In trying to understand why some students succeed while others drop out we must acknowledge the complex interplay of certain ‘push’ and ‘pull’ factors. ‘Push’ factors encourage them to continue while ‘pull’ factors lead to withdrawal. Below we give an over-simplified picture of the ‘push’ and ‘pull’ factors acting on an imaginary individual.

<table>
<thead>
<tr>
<th>Push</th>
<th>Pull</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wants degree to get promotion</td>
<td>Wants to spend more time with family</td>
</tr>
<tr>
<td>Likes to finish something started</td>
<td>Course is very difficult</td>
</tr>
<tr>
<td>Very interested in the subject matter</td>
<td>Fees are high</td>
</tr>
<tr>
<td>Spouse is very encouraging</td>
<td>Doesn’t like course tutor</td>
</tr>
<tr>
<td>Allowed time off for summer school</td>
<td>P/A degree course available nearby</td>
</tr>
</tbody>
</table>
Each of these factors will have different strengths and drop-out will occur when the 'pull' factors outweigh the 'push' factors. Some students begin their course with the 'push' factors barely outweighing the 'pull' factors and they are very vulnerable. In other cases the 'push' factors greatly exceed the 'pull' ones and it takes a dramatic new pull factor such as a death in the family, or being sent abroad to work, to cause withdrawal. Such a model has important implications:

- When students are asked why they drop out they usually give the most important or most recent 'pull' factors as the reason. While this might be important to know this, it does not necessarily mean that this is something on which the Open University should act. A more general strategy would be to increase the 'push' factors and decrease as many 'pull' factors as possible.
- We will never be able to predict perfectly which students will drop out using standard demographic variables. As a group, teachers might be more successful but individually the 'push' and 'pull' factors will differ and all will be susceptible to unpredictable changes in their personal environment.
- Most drop-out occurs before the first assignment of a course which suggests that many people are 'marginal' students with the 'push' factors barely outweighing the 'pull' factors at the time of enrolment. Drop-out could be reduced if greater efforts are put into encouraging people to consider fully their situation before registering for a course. Better course descriptions and sample course materials would ensure that students know exactly what they are registering for.
- The final 'pull' factor which causes drop out is often a temporary crisis at home or work which makes students fail behind with their studies and miss assignments. The Open University should investigate ways in which it can learn about such crises in time to assist the student, or it should develop modes of study that can enable students to cope with such short-term crises.

6. Collective concern about drop-out has been spasmodic

In 1982 one in five of the newly registered undergraduates and one in three of the continuing undergraduates failed to gain any course credit. The fact that these figures caused little stir overall within the University serves to indicate the extent to which student drop-out and failure has become institutionalized. There are a number of reasons why this has occurred:

(i) Drop-out has no visible impact. Lecturers are not confronted by dwindling student numbers in lecture theatres.
(ii) Course teams are not generally held responsible for student drop-out. A course is only singled out for scrutiny if its drop-out rate is much greater than those of similar courses in the same faculty.
(iii) A certain level of drop-outs is considered to be inevitable due to life events such as death, illness, marriage, etc. and to the fact that some students register with no intention of gaining a course credit.
(iv) Some level of failure is considered to be desirable to demonstrate the academic rigour of the course.
(v) Some drop-out is known to be a 'positive' act, e.g. when a student transfers to a full-time course, and some people remain unconvinced that drop-out is a problem.
(vi) The University is never confronted with angry groups of dissatisfied customers — students are more likely to feel they have 'failed' as opposed to the University having failed.
(vii) Some argue that Open University students are considered to be responsible adults and as such are free to make their own decisions whether to continue with a course. Concern about drop-out is seen as paternalistic.
(viii) Regional staff are often powerless to prevent drop-out as it is generally too late to act by the time they hear of it.
(ix) Drop-out rates can only be defined as 'high' or 'low' in comparison with the rates on courses elsewhere and the Open University has no comparison group.
Our conclusion is that drop-out only becomes an issue when there are deviations from the norm. This generally occurs when a course is shown to have a very high drop-out rate or when drop-out rates are known to be increasing over a number of years. This "casualty ward" approach to student drop-out is unsatisfactory for a number of reasons. To understand fully why a certain course has a high drop-out rate one must make comparisons with courses with average or low drop-out rates. By the time a long-term trend has been identified it is often too late to determine the precise changes which have occurred over the years. However, even if all courses had the same drop-out rates and they were consistent from year to year, the University must decide whether such rates are acceptable and inevitable. If the University genuinely wishes to reduce drop-out rates it must consider what would constitute general preventative measures rather than palliatives or short term antidotes to perceived crises.

**Question 16** "How can research help with the drop-out problem?"

- Measurement of drop-out levels and analysis of trends.
- Identification of "at risk" students using multi-variate techniques.
- Identification of individual courses, tutors, regions etc. which produce unexpectedly high drop-out rates. (The present paper has shown how one might calculate the 'expected' drop-out rate for a course given its characteristics and student population.)
- Further analysis to discover true causal factors. E.g. whether summer schools cause low drop-out rates or are merely associated with them.
- Experimental research. Strategies to reduce student drop-out could be more rigorously tried out on certain courses, in certain regions, etc.
- Improved surveys which overcome the problems of low response rates and answers which are difficult to interpret.

**Question 17** "How can drop-out be reduced?"

There is no single factor which causes student drop-out and hence there is no miracle cure waiting to be discovered. Imagine for a moment that you were set the task of reducing road accidents. Your suggestions might include some of the following:

- Reduce the speed limit to 20 m.p.h.
- Make the driving test much harder
- Improve roads and road signs
- Improve safety features in cars
- Reduce traffic by doubling the price of petrol
- Use more traffic police

The drop-out problem is similar. We can attack it in any number of ways and each solution, though attractive in some respects, is likely to have some drawbacks in terms of cost, practicality, infringements of personal freedom, etc. Let us consider some possible 'solutions'.

The University could introduce an academic selection policy. It could use selective publicity to attract "low risk" students, or it could refuse to allow students who have failed an Open University course to proceed with their studies. However, these solutions go against the University's basic philosophy.

Other solutions such as making prerequisite courses compulsory, or restrictions on the number of courses a student can take in a given year, might achieve the desired effect but only at the expense of student freedom of choice.

Other measures which might be effective may be considered too impractical or costly. Here we are thinking of things like changing the Open University academic year so that students do not drop-out to begin a course elsewhere in September, and providing different versions of the same course to suit different students' learning styles.

Some solutions, while reducing drop-out among certain student groups, might have knock-on effects for other groups. If the Open University were to abandon its rigid policing it would allow students with domestic or work crises to spread their
studies over a longer period. However, this would almost certainly increase drop-out among those who need such pacing to provide the discipline demanded by distance study.

Question 18. What can the University most usefully do?

What the University seems to require is a set of initiatives which are relatively cheap, practical and humanitarian and which are aimed at improving the ratio of 'push' to 'pull' factors for its students. These might include:

- More and better admission counselling for new and continuing students, coupled with better course descriptions and sample course materials;
- Increased and more active tuition and counselling during the course;
- More and quicker feedback on assignments;
- Higher quality courses aimed at engaging the student to a greater extent;
- A shift in the balance of central academic staff attention from course production to presentation.

Some of the more draconian measures outlined in the previous section might also have a part to play if modified somewhat:

- Counselling out of the system of students who are clearly gaining no benefit from the Open University. (This is already happening to some extent with deregistration.)
- Insisting that students who want to take on a heavy workload or who have not done recommended prerequisite courses should discuss their plans with a counsellor;
- Allowing students with difficulties to opt for taking a course over an eighteen month or two year period.

What is clear is that a variety of small to medium scale changes is probably needed. Our evidence suggests that drop-out is a systemic problem, relating to the University's working as a whole. It is not due to a neatly encapsulated and isolated malfunction of a single aspect of the University's operation which can be put right by replacing or repairing a single component. Rather, imaginative and carefully selected interventions are needed at various points throughout the system. Multi-causal problems require multiple partial solutions which operate progressively and cumulatively to produce long-term changes in trends.

References