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ABSTRACT

Five papers examine the adoption of resource based learning at Charles Sturt University (Australia). "Literature Searches and Distance Education: Whose Problem?" (Stephen Parnell) discusses the question of who should accept responsibility for the intellectual content of literature searches; the library is at the center of a resource based learning environment, and a fundamental role with implications for teaching staff, librarians, and students, is how the acquisition of literature searching skills is best promoted. "The Information Needs of Australian Postgraduate Distance Learners: A Review of the Literature" (Peter Macauley) analyzes how growing numbers of postgraduate distance students at Australian universities meet their information needs, including their awareness of university library services, usage patterns, interlibrary loans, and their use of other local and university libraries. "The Attitudes of Lecturers and Students To Prerequisite Subjects" (Hailu Kidane, Douglas McMillan, Pamela Mathews, and Janet Smith) details a survey conducted by Charles Sturt University (CSU) staff which investigates the attitudes of lecturers and students to prerequisite subjects, concluding with recommendations of interest to those reviewing current policy and practices, especially in relation to the development of generic and analytical skills. The final two papers focus directly on resource based learning. "Anticipating Shifts in Teaching Practice" (Bruce Pennay) identifies trends in teaching and learning at CSU and suggests that academic staff should engage in the debate. "Resource Based Learning at CSU: Changing Roles in Learning and Teaching" (Stephen Relf) surveys past and contemporary understandings of resource based learning and concludes that while CSU's experience in distance education can contribute to future directions, its central issues are the decentering of the teacher, and student learning. (Author/SWC)

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Contents

Editorial

Occasional Papers in Open and Distance Learning, Number 20, contains five papers which are also accessible on the Internet using the following URL address:
http: //www.csu.edu.au/division/oli/olihp.htm

This edition goes to print at a time when most Australian universities are responding to budgetary cuts in higher education. In searching for further efficiencies in how it delivers its learning and teaching programs, in seeking to promote lifelong learning and in planning to make greater use of modern telecommunication technology, CSU is preparing to adopt resource based learning. As a rural NSW university with limited geographical catchment areas for its on-campus intake, CSU has always had to embrace change in order to attract students in an increasingly competitive environment. On-line delivery of subjects and multimedia dimensions are ingredients in the University transition to resource based learning.

Anyone who has ever studied off-campus will recognise that the information services provided by libraries are lifelines for most distance learners so it is particularly pleasing to have two papers in this edition from contributors who are very familiar with this area and who recognise the importance of developing a cohesive philosophy in meeting the information needs of all students. Over the last decade the rapid increase in the numbers of students studying university courses at a distance, especially at the postgraduate level, has presented particular challenges. In the first paper Stephen Parnell returns to a series of recurring issues which he initially addressed in 1987, especially the question of who should accept responsibility for the intellectual content of literature searches. The library is at the center of a resource based learning environment and a fundamental role which has implications for teaching staff, librarians and students, is how the acquisition of literature searching skills is best promoted.

The second paper, contributed by former CSU postgraduate student Peter Macauley, is a very contemporary analysis of how growing numbers of postgraduate distance students at Australian universities meet their information needs. The awareness they have of university library services, some puzzling patterns in their library usage, interlibrary loans and the use they make of local and other university libraries are themes extracted from a comprehensive study of the literature.

The third paper details a survey conducted by a group of CSU staff principally within the Faculty of Commerce which investigates the attitudes of lecturers and students to prerequisite subjects; it concludes with a series of recommendations that will be of interest to those who are reviewing current policy and practices, especially in relation to the development of generic and analytical skills.

The final two papers focus directly on resource based learning: Bruce Pennay identifies trends in teaching and learning at CSU and suggests that academic staff should engage in the debate; in surveying past and contemporary understandings of resource based learning, Stephen Relf notes how CSU's experience in distance education can contribute to future directions but for him the central issues are the decentring of the teacher and student learning.

Peter Donnan
Editor

A call for papers

Occasional Papers in Open and Distance Learning is published twice a year, generally in April and November. As the title suggests, a considerable range of issues is appropriate for inclusion within the publication.

The editor would like to invite papers from CSU staff which focus on open and distance learning.

Please submit a copy of any material for publication in the next issue to:

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Editor
Occasional papers in Open and Distance Learning
Charles Sturt University
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Wagga Wagga NSW 2678

Please note that if you are typing your paper, the editor can provide an IBM template (Word for Windows) or a printed style guide for contributors using other word processing packages.

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Literature searches and distance education: Whose problem?

Stephen Parnell
Division of Library Services

Abstract

Libraries that attempt to provide a comprehensive range of services to distance education students face a number of challenges. Many of these are essentially economic in nature. Others raise issues of equity and professional responsibility. This paper looks at the problems the user 'in absentia' may occasion the information librarian and considers the question of who should take responsibility for the intellectual content of literature searches. A possible response is to formulate and act upon a policy of differential service based upon the nature and level of the course of study and the degree of isolation of the student.

Dilemmas of searching at a distance

In a paper presented some years ago at a conference of reference librarians in Melbourne, three interrelated challenges facing library information services which arise from a university's decision to offer courses via the distance education mode were identified. These were: the difficulty in conducting a satisfactory reference interview when the information seeker is not present in person; competition between internal and external requesters; and the conflict that sometimes occurs between the service ethos of information librarians and their sense of personal and professional responsibility (Parnell, 1987). There is no evidence that satisfactory solutions to the problems identified in that paper have as yet been found. Indeed one of the problems, that of who should take responsibility for the intellectual content of literature searches, seems to have worsened as universities seek to increase the number of enrolments of higher degree students. This is particularly the case for institutions that attract students who are not resident in centres with significant library collections and who may not even be resident in the same state or country as the parent institution.

Growth and diversity

When Riverina College, one of the constituent parts of Charles Sturt University, offered its first off-campus courses in 1972, there were 42 students enrolled in a teacher conversion course. Demand upon the library by off-campus students was negligible and computer searches unknown. In 1996 Charles Sturt University has campuses in Albury, Bathurst and Wagga and provides specialised courses to the police and ambulance services at affiliated centres at Goulburn, Manly and Rozelle. There are more than fifteen thousand students studying in the distance mode at all levels including doctoral. The university is increasingly integrating the Internet into distance education (Bisman, 1996).

Requests come to the library by fax, email, telephone and mail. They come from students resident in Hong Kong, England, Canada, Malaysia and beyond. They come despite, or perhaps because, the library makes available over a dozen major abstracting services and a thousand full-text periodicals to those with Internet access. They come from students at all levels and from all subject areas, with business, education, nursing, science and librarianship students amongst those who most regularly request database searches.

Not surprisingly, rapid growth in the number of students studying through distance education as well as in the diversity of subjects offered, has placed considerable strain upon library services. It has led amongst other things, to a questioning of the nature and extent of assistance to be provided for literature searches. It has led the university library to reconsider those thorny issues of real and expressed needs and of the role of an information service in the education process.

The 'problem' of information requests from distance education is relatively recent. While the volume of requests was low, the information service provided was generally timely and appropriate. There was time to consult with supervisors and course coordinators and these in turn were familiar with the individual requirements of their students. With a limited range of subjects offered, close liaison with a small number of academic staff and requests all from undergraduate students, there was little questioning of the level of service that should be provided. This changed once the teaching of Library and Information Science began. While I don't really wish to deal too much with the particular problems of librarianship and education masters students as a distinct group, it is certainly true to say that it was their demands which first really forced information librarians to consider the ethical questions associated with providing information to distance students.

Definitions

Before looking more closely at the problems which arise when libraries attempt to offer a comprehensive information service to university students, it may be useful to first define our current classification of what constitutes a reference question. Most are obvious. In addition to short factual questions, all requests requiring a search of a periodicals index or other database, whether in electronic or print format are recorded as reference. It is this form of searching which is most commonly known as a literature search. A request for a book as a substitute for one given on a reading list however is only regarded as reference if the subject is unfamiliar and no alternative is provided in the subject outline or reading list. In this case, a search of the catalogue by library staff would be required - a literature search. A general request for books where several appear on the shelves under an easily recognised heading would also normally be categorised as reference since it requires judgment on the part of professionally trained library staff. A request for current books on general organisation theory for a specific assignment would be an example of this type.

The incomplete enquiry

Apart from that of definition, I have suggested that the problems facing libraries and librarians attempting to provide an information service in distance education are threefold. Firstly and most obviously, it is the rule rather than the exception that the all important reference interview will not be conducted face-to-face. While it is often difficult to elicit even from requesters who seek help in person just exactly what they want or need, in most cases this will still be more satisfactory than interrogating a

piece of paper, email or recorded message on a vocaphone. The librarian must work even harder as a detective. What clues does the request provide? Did the requester indicate which course or subject the request is associated with? Have similar requests indicated the appropriate assignment or lecturer? Do accompanying requests for books or photocopies give a clue? Is a computer search really required as the requester seems to think. If not, can or should it be tactfully refused?

These are important questions. Even in the electronic age there is often a delay in communications between requester and librarian. Any misunderstanding or need for clarification will inevitably delay the student's receipt of information requested. In this environment the tendency is to do too much rather than too little.

Competition for service

The second challenge for librarians is that information requests from remote users have to compete with those from other users. If these requests are from other distance education students and are received through the same medium, they may be on equal terms. In most cases the library will deal with requests in order of receipt. Is this fair? Should requests from higher degree students be given priority? Many students request searches on multiple topics. Should all requests from a single student be dealt with before turning to the next student?

At busy times of the year requests from distance education students may also have to compete with requests made in person. Now there is nothing really new here in the librarian's dilemma of deciding on priority of service. What is worth considering is the difference in impact between a request sheet with a note stating 'last date useful' and a request from someone who literally stands and waits, and not always quietly.

There are a host of associated considerations here. Many of these arise from the question of who deals with requests and the relationship between different sections of the library. How these are resolved will depend in large part upon the place of the Distance Education Students Library Service in the library and the manner in which information requests are dealt with. Are they handled by the distance education service or by the reference section or by a combination of the two? In a multicampus environment there is scope for confusion when students direct the same or similar requests to two or more service points in the hope of improving their chances of success.

At Charles Sturt the Distance Education librarians are both keen and qualified to conduct information and literature searches. Indeed it should be asked who could be better qualified than those most familiar with courses offered in this way? Experience with similar previous requests from distance education students and with the particular problems facing those who choose to study in this way has proven to be most valuable. The downside of this otherwise favourable situation is that given the other demands upon their time, Distance Education librarians are unlikely to be those most familiar with the reference collection and its electronic extension. It takes time to become proficient in the vast range of resources now available on the web. Changes occur every day. In the real world, all too often information requests must compete with administrative and clerical chores. Inevitably enquiries are 'farmed out' to staff unfamiliar with the needs of particular distance education courses in the hope that this will be offset by greater proficiency at handling information requests per se.

Most information librarians spend most of their time attending to the requests of on-campus students and academic staff. Even with our preponderance of distance education students, most reference work is initiated by those undertaking full time study as internal students. Why this should be so is an area requiring study. Although requests from distance education students run into the thousands, are extremely time consuming to deal with adequately and are growing in numbers, the low representation of requests from external users may itself represent a problem. At a time of limited resources and growing expectations, it is a cause of relief as well as concern.

As something of an aside here it is worth mentioning that one of the more unusual features of institutions offering courses by distance education is that a large number of their students make more use of other libraries than of their own. Some will use those libraries in close proximity to their place of residence, preferring to search for material themselves rather than rely upon librarians. Others will no doubt will attempt to convince librarians at their host library that it is their responsibility to assist them in their literature searching. Another group will rely on the collections and knowledge of friends and colleagues. This undoubtedly presents an opportunity for the 'Home' library to develop a false impression of the nature and extent of information requests. It is one of the reasons why it is so important that librarians talk to academic staff. As complete a picture of the information seeking behaviour of our target user group as possible is required if we are to develop our services in the most beneficial way.

The ethics of assistance

The third challenge which confronts information staff serving distance education students is one that I regard as ethical in nature. Most commonly the dilemma arises when the distance education librarian or information librarian receives a request to conduct a literature search for a topic, subject or course for which they might assume (or presume) the skill of literature searching to be implicit. Librarians are also asked to provide interpreted answers to assignment questions and receive requests for material on Interlibrary loan from universities within walking distance of the student's home address. Increasingly we are forced to question the extent of the responsibility of the librarian in conducting literature searches for higher degree students.

There is another dimension to this issue. A number of commercial enterprises offer information services to students. These include literature searches of databases for postgraduates. Some of these have been permitted to advertise in the publications of different Australian universities. The question of who is responsible for literature searching for academic assignments extends beyond the library.

I seem to recall that Margaret Hutchins, who in the days when I was studying reference was still regarded as the gospel of reference work, divided reference into three levels (Hutchins, 1944). The first level was virtually directional, the 'Here is an encyclopedia that will give you the answer' sort of assistance. The middle level went a little further, perhaps to 'Here is an article I've found using an index, if you follow the same steps you can find others'. Once again the emphasis was on the requester doing the bulk of the work. This is typically the sort of assistance we might offer users visiting the library in person. It is for the library a reasonably efficient means of imparting search skills and partially fulfils the professional obligation felt by many librarians towards fostering lifelong learning skills.

The final level identified by Hutchins was for the librarian to provide as much information as desired - 'Here are 200 articles relevant to your topic, let me know if you want more' is an example. This level of assistance really requires the librarian to make not only a value judgment on the relevance of articles retrieved, but also of the place of literature searching in a student's course. This is particularly the case for requesters unable to visit a library in person. The challenge as I see it is to decide whether or not it is the librarian's role to identify the role of the literature review in a student's course and on that basis, determine appropriate levels of service. The result of this determination would be to deliberately provide an inequitable service to students based on the level and nature of their course of study.

Clearly this is not a decision which most librarians would happily make in isolation from their academic colleagues, even if time permitted. The dilemma is that supervisors of higher degree candidates are themselves divided on this issue of the degree to which they expect students to be responsible for their own literature searching. While many require or assume that their students will conduct their own searches, others believe that interpretation and synthesis of results of a search is more important. Some with students living in areas isolated from major libraries believe that the university has an obligation to provide this service to students accepted into higher degree courses offered through distance education. Librarians too are divided on this issue, with some questioning whether there is any substantial difference between literature searches for distance students and the assistance given to those on-campus (Cavanagh and Lingham, 1994).

The case for differential service

I would suggest that when it comes to the provision of literature searches, students should not all be considered as equals. Now in making this provocative statement I must confess that my view has been coloured first by experience with requests from library science students and latterly by those from higher degree students across a range of disciplines. Although with several hundred students enrolled off-campus in its various library science and information courses Charles Sturt University can scarcely be regarded as typical, I think that the questions that service to such students raise are pertinent to all librarians as well as to the profession at large. Let me attempt to justify inequitable service.

One justification is that in times of competing demands, support should be given to those who are least able to locate the information or resources they need themselves - subject to the requirements of the course. It is an important qualification.

The next is a question rather than a justification. How seriously does the library take its role in fostering lifelong learning? Are we prepared to make value judgments that in educational terms it may not be desirable to supply the level of assistance requested? Are we prepared to defend in academic forums the proposition that it is in either the students' or their prospective profession's best interest for students to conduct literature searches themselves?

Whichever line we pursue, there is obviously a need to consider it in the context of the content, presentation and timing of information literacy sessions offered. Can we provide training to off-campus students equivalent to that offered on-campus? Most information searches for on campus students are carried out in close consultation with the requester. They may in fact be regarded as much as guidance encounters as reference and merge inevitably into reader education. When such face-to-face contact is not possible then decisions have to be made as to the amount

of work which the librarian should do and that which might reasonably be expected of the student.

Lifelong learning and the literature search

Academic staff of universities offering educational programmes through distance education and via electronic media are aware that the roles and responsibilities of both staff and students are changing (Stacey & Thompson, 1996). There is also an awareness that distance education poses particular challenges for information literacy programmes (Wilson, 1994). As yet however there appears little discussion of the relationship between distance education, the literature search and the research process.

Although there has been a burgeoning of resources available in electronic form, those available and appropriate to academic assignments and research remain limited. Those with adequate online Help and tutorial facilities are few and far between. Even in those areas where electronic research tools exist, it is apparent that many students lack the skills, the confidence or the will to fully exploit them. Many students have direct access only to libraries with poor reference collections and some to no library at all. Literature searching for all but those close to major centres can be both difficult and expensive. It is perhaps fortunate that so many undergraduate courses seem to require or encourage little research, relying instead on a limited range of textbooks and printed notes.

While a limited exposure to different ideas may be acceptable at undergraduate level, it is far less acceptable for graduate study. Sadly, even here however there are instances of requests which run very much along the line, 'Find me something on .... so I can write my dissertation'. The question of who should do the searching, student or librarian, is even more pertinent here. What is certain is that it is appropriate that librarians contribute to the debate. Even though librarians are employed to find information, it is our belief at Charles Sturt that basic education should incorporate the ability to conduct searches of the literature of your subject, be this law, psychology or science. If there is little perceived value in the literature search as an activity in itself, then students, internal and off-campus, should be absolved from the need to conduct them. This presupposes cooperation between the library and lecturing staff in course design. This has occurred in some instances by transferring literature searches as an activity to residential school periods to the benefit of library and student.

A university response

At Charles Sturt University we are guided by a policy of differential service which in essence says, not that service will be refused, but that given limited resources preference will be given to those remote from a library and not undertaking a course or assignment for which the ability to conduct their own literature search might be regarded as an essential element. Do we then in fact refuse service? Not quite, although the preconditions do exist. We attempt to convince requesters of the desirability of searching for material themselves. We also negotiate service levels with those who make what we deem unreasonable demands upon our Information service, although this process needs clearer guidelines. The library's interpretation of 'unreasonable' is of course subjective and while we deliberately consider course of study and location of student, there is no doubt that time of the year also determines our response.

Occasionally we manage to convince lecturers that responsibility for ensuring that their students develop literature searching skills is an appropriate role for them to play. Few initiate training in literature searching. Despite or because of the relative recency of higher degrees offered though distance education by this institution, there are few guidelines offered to supervisors. Lack of agreement on responsibilities in this area both within and between the different Schools of the University remains.

A role for the library

If librarians feel uncomfortable about conducting a particular literature search for a student or group of students on the grounds that this skill is explicitly sought in a subject outline or implicit in the level or title of a course, they have an obligation to raise their concerns with the academic supervisor or course coordinator. This is one response to the question posed in the title - 'Whose problem?'

Another response is to promote independent learning by providing advice and training to supervisors and students on how to conduct a successful literature search. Residential schools are an obvious opportunity for students to acquire search skills and begin their own searches under supervision. Information sheets and online tutorials already supplement this process but there remains a need for librarians to identify and develop better guides in both print and electronic form. *A guide to effective use of the library* (Smith and McKinnon, 1996) and CSU's *Library research: A hypertext guide* are steps in this direction.

Concluding remarks

I have looked here only at some of the problems which might arise from provision of an information service to distance education students; suggesting a possible response to one of these, determining responsibility for information searches. Lest we despair, it must be admitted that although the volume of requests continues to rise, and many of the 'problems' of the past remain, information work with students by fax, phone, post and email remains intensely interesting. Academic staff are now more attuned to the problems of distance teaching and most importantly the composition of the library staff has changed from being preponderantly the products of full-time courses to products of distance education courses in librarianship. Its is ironic that those who first raised the question of levels of service, distance educated librarians, are now required to participate in its solution. Despite our policies and carefully worded letters however, we are still only part way along the road to a cohesive educational philosophy which addresses the needs of off-campus as well as internal students.

It has long been apparent that our traditional views of information service are not always appropriate or easily foisted upon our clientele. We are short sighted if we think that the still to arrive electronic library will of itself solve our problems. In these days of concentration upon the financial constraints on service provision, it is worth considering the ethical considerations inherent in the provision of information services to those we purport to educate.

There are undoubtedly challenges in providing an information service to users unable to visit libraries in person. Some of these such as establishing the exact nature of a request, really differ only in degree from those faced by librarians dealing with requesters in person. Others, such as determining priorities of service, are inherent in any public service sector activity. Some however challenge librarians

at both a personal and a professional level. Reconciling requests for literature searches with perceived course or vocational needs is in this category.

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The information needs of Australian postgraduate distance learners: A review of the literature

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Abstract

In order to fulfil its mission, librarianship needs to be based on well-founded theoretical understandings about the nature of information, the nature and needs of human beings, the transfer process between people and information resources and the way people use information. In relation to distance learning, what can be ascertained from the literature about how off-campus students satisfy their information needs? Furthermore, since postgraduate education has been the fastest expanding sector in Australian universities, the question arises: what do we know about how Australian distance higher degree research students obtain access to materials for study?

Introduction

Australia has been providing distance education to tertiary students since 1911, ever since the University of Queensland opened its doors to external students. By 1988, forty-two colleges and six universities in Australia offered external courses to almost 48,000 students (Crocker, 1991: 495). In 1994 nearly 69,000 students were studying via the distance mode from twenty-eight universities throughout Australia (Department of Employment, Education and Training, 1995: 22-23). Back in the early 1980s, Howes (1983: 85) correctly predicted this increase by stating 'there seems little doubt that the current trend towards external study will continue in the foreseeable future'. Four years later Northcott (1987: 235) stated 'there is a rapidly growing number of postgraduate students taking courses by distance education'. The overall trend in popularity of the distance mode of study had taken off for postgraduate studies as well.

Unlike the Open University in the United Kingdom, Australian tertiary institutions offering distance education courses offer a library service to their distance students, although there has been a wide variation in the type and standard of the services provided. Maticka (1992: 60) suggested that the Australian model is different from the overseas situation, in which students can rely on well developed and funded public library systems. She says 'it cannot be said that Australian distance teaching institutions chose to provide library services for any strong educational reasons; there was simply no alternative'. Standards of service certainly differed fifteen years ago, judging by the following statement by Reid-Smith (1980: 132) regarding the then Riverina College:

> The College has attempted to ensure that students have access to learning materials in three ways: (a) by encouraging local libraries to stock certain basic professional periodicals; (b) by building up a useful College Library and providing access tools such as the above-mentioned index to current articles and a partial catalogue of the library's holdings; and (c) by enclosing a basic minimum with mail packages. Some would see the attempt to force students to use their local libraries as an abrogation of College responsibility, whereas others may view it as a valuable exercise.

Many librarians would certainly perceive this as neglecting their responsibility by failing to make proper provision to their distance students. As Cameron (1988: 226) has stated 'at any rate, tertiary institutions are funded on the assumption that they will meet their obligations to their own students'. She goes on to say 'In Australia, one cannot assume that the public library services will support one's students. Few of our public libraries see themselves as "the people's university".'

Postgraduate education has become the fastest expanding sector in Australian universities, with an annual growth rate of more than 9 per cent per year over the past ten years. In 1993 almost 62,000 students (both internal and external) were pursuing higher degrees in Australia, more than ten per cent of the total university population. This compares with only 25,100 students in 1983, at seven per cent of all enrolments (*Campus Review*, 1994: 3). This trend is expected to continue as the annual growth rate in commencements for higher degrees stands at 14.3 per cent per annum since 1983, far ahead of the general growth of all commencements of 5.4 per cent (*Campus Review*, 1994: 3). Looking specifically at postgraduate study by distance mode, there have been large increases nationally. At the Central Queensland University for example, in the ten years prior to 1990, enrolments rose from 272 to 995, a massive increase of 370 per cent (Appleton, 1994: 78).

Library provision for distance students

There are a few very good literature reviews on library provision for distance education students, including Haworth (1982) based on her Masters' thesis. Haworth concludes that off-campus students are at a disadvantage in terms of library services compared to their on-campus counterparts but is unable to locate empirically based library user studies which effectively document the extent of the disadvantage; Snow (1988) published a literature review as part of 'Developing Partnerships' which investigated library-based relationships with students and educators participating in distance education in Canada (Burge, Snow and Howard, 1988); Shklanka (1990) provides a more up to date, albeit North American biased viewpoint, even though the researcher states that it builds upon Haworth's earlier review; and then there are what have become the bibles of the literature on the subject by Latham, Slade and Budnick (1991), 'Library services for off-campus and distance education: an annotated bibliography' and 'Library services for off-campus and distance education: the second annotated bibliography' by Slade and Kascus (1996). The first edition provides worldwide coverage with 535 annotated entries including journal articles, theses and research reports produced over a sixty year span between 1930 and 1990. The second edition has 518 entries, mostly published since 1990, complementing the first edition. Carty (1991) produced a Masters' dissertation on the topic 'Library services for distance education students: adequacy of provision: the Open University, Australia and Canada' which was completely literature based and as such provided a very good review of the literature. The aim of her study was to discover whether library services for tertiary level distance education students are adequate for their needs. She found, with a couple of exceptions, the provision was inadequate. Included in her suggestions for improvement was the need to raise

distance education providers' level of awareness of students' library needs, to broaden the definition of the term 'library services', to adopt a student-centred approach and to gain acceptance of the concepts of 'ultimate responsibility' and 'partnership'. Overall, the coverage of postgraduate literature in these reviews was, not surprisingly, very sparse.

With a few notable exceptions, such as Winter and Cameron, (1983); and University of Central Queensland Library, (1993), most research on library provision to distance education students has solely concentrated on undergraduates. There have been a plethora of library studies over the years mainly carried out in Australia, Canada, the United Kingdom and the United States. This paper will focus mainly on Australian studies.

The dominating feature of most of the Australian studies is that they are descriptive and practical rather than being based upon theory, or conceptual thinking. Some of the overseas studies such as Fine (1984) who states that often library-based researchers do not focus on ways users obtain and process information, and they do not attempt to develop a theory of user behaviour. Although Fine's paper is not part of the distance education literature it is very relevant when evaluating off-campus library services. Burge, Snow and Howard (1989) in their Canadian study, produced a conceptual model in which librarians and educators work together as partners in planning such things as resource development, communications, course planning and materials delivery. Fine (1984: 447) sums up the Australian situation very well:

> While there have been many studies of library users, few give any more information than 'how many did what'. This kind of research is rarely of use outside of the institution in which it is done, and sometimes not even there. Even when research across a variety of libraries produces comparable results, its use is limited to a narrow band of issues for decision-making. Its focus is on the pragmatic, the specific.

These comments should not detract from some of the excellent studies that have been carried out by Australian librarians since the 1970s. In 1976 the Gippsland Institute of Advanced Education (GIAE) conducted a survey of all external students, based partly on a similar survey at Massey University. The aims were to obtain information about the use the GIAE Library and other libraries by external students, together with their reasons for that use, as well as collecting information about student characteristics (Tolley, 1976: 1). Although the response rate was low (36 per cent), the survey established that 63 per cent of respondents lived within five miles of a library they could use and that 76 per cent borrowed from libraries other than GIAE. These statistics did not include higher degree by research students, but still provide some interesting data. Store provided a more comprehensive survey with his 'Survey of library services to external students of Australian colleges and universities' (Store, 1979). This was the first attempt to compile a statistical summary of library services to external students from Australian tertiary institutions and so it was a valued contribution to the literature. Store's survey revealed '... considerable discrepancies in the range and availability of services offered and expenditure incurred at different institutions' (Haworth, 1982: 165). It is unfortunate that there was relatively little comment with the survey results.

Haworth's case study on 'Library provision for external students at the Royal Melbourne Institute of Technology (RMIT) Advanced College: a case study' as part of her Master's was completed in 1980. Her thesis examined library services for external students at RMIT and discussed the expectations and perceptions of academics concerning the role of the library in assisting students. Noteworthy

among the findings was that more internal students than external respondents used the RMIT Library, even though 44 per cent of the external respondents lived in the metropolitan area, while substantially more external than internal students did not borrow from any libraries at all (Haworth, 1982: 169).

The most notable and comprehensive study on library provision to distance education students in Australia has been by Winter and Cameron (1983), 'External students and their libraries: an investigation into student needs for reference material, the sources they use, and the effects of the external system within which they study'. Behind this long winded title exists a report that, although over a decade old, is still the most highly regarded and in-depth Australian study of its type. The study was funded by the then Commonwealth Tertiary Education Commission (CTEC) and involved a random sample of more than 2000 students from ten tertiary institutions. The response rate was about 75 per cent, and approximately 15 per cent of the sample were postgraduate students. Fortunately the study included higher degree by research students: it found that these students made much less use of their own institution's library delivery service and fewer personal visits than their undergraduate counterparts. The study also found that 75 per cent of research students used other tertiary libraries, a much greater usage than the other students surveyed. Interestingly, higher degree by coursework students used their library delivery services far more than their higher degree by research colleagues and they also used their library in person more frequently as well. This certainly adds credence to the theory that many research students are well catered for by libraries other than from their own institution. This is not surprising considering almost 70 per cent of the students surveyed lived in capital cities or large cities (Winter and Cameron, 1983: 106).

An important issue that emerged from the Winter and Cameron Report was that of reciprocal borrowing rights for external students. CTEC funded a study (Crocker, Cameron and Farish, 1987) to investigate existing arrangements and the possibility of allowing all external students to use any tertiary library in Australia by means of a national library card. The proposed scheme was never implemented despite much debate between the established larger, capital city institutions and the smaller country based institutions that had large enrolments of external students. Some state and regional schemes are now in operation, though, such as CAVAL in Victoria and UNILINC in New South Wales (formally CLANN). This issue had little effect on external higher degree by research students as the larger institutions generally gave them borrowing rights in any case. The 'flood of undergraduates' was what some librarians were concerned about, not the 'trickle' of postgraduate research students. Radford, the Librarian of the University of Sydney was probably the greatest opponent of the national scheme, but was supportive of the research needs of postgraduate students. Radford (1988: 142) commented 'the modest numbers of postgraduate students relative to undergraduates and the variety of their research topics minimize the likelihood of outside students seriously competing with one's own'. He regarded postgraduates' needs as, of course, similar to the needs of academic staff.

Other earlier studies basically concentrated on undergraduate provision including Appleton and Meyers (1979), Brockman and Klobas (1983) and Martin (1986). Appleton and Meyers from the then Capricornia Institute of Advanced Education conducted a basic survey of other tertiary college libraries for the purpose of gaining planning information. The Brockman and Klobas study used the survey method to compare and evaluate the use of the Western Australian Institute of Technology libraries by on-campus and off-campus students. Martin's study surveyed a number

of Australian regional colleges and a variety of data. Carty (1991: 32) agreed with Haworth's earlier comments about Store's survey that:

> ... considerable discrepancies in the range and availability of services offered and expenditure incurred at different institutions was equally true of Appleton and Meyers', and of Martin's results. That Martin's results should have displayed these discrepancies was disappointing considering the fact that the guidelines concerning library services for external students, which both Appleton and Meyers, and Store had recognised as needing to be developed, had been devised and published a few years previously.

The guidelines referred to were the 'Guidelines for library services to external students: prepared by a sub-committee of the Special Interest Group on Distance Education' (Crocker, 1982).

Grosser and Bagnell (1989) undertook a comprehensive study of external students enrolled at Deakin University in 1987 to determine whether their demands on public libraries differed significantly from those of students enrolled in internal mode. The results of the survey indicated that a majority of students were frequent users of public libraries, using them more than their own university library. Of the respondents in this study 10.4 per cent were studying at Master's level (including Master's by coursework) and 1.2 per cent at doctoral level. Grosser and Bagnell's (1989: 305) comments backed up earlier opinions when they stated:

> There is a tendency to think of an external student as one living in an isolated rural area, many miles from any tertiary institution. While this may be true of some of the less populous States, it is certainly not an accurate picture of the majority of external students enrolled in Victorian or NSW institutions. There is a high metropolitan concentration of external students enrolled at Deakin: 60.1 per cent of respondents to the survey resided in the Melbourne metropolitan area.

Overall, undergraduates accounted for a much greater proportion of public library usage than did postgraduates, but it showed that public libraries do play an important role in the lives of external students.

Deakin University Library staff have produced a number of concise, descriptive and practical papers on the provision of library services to distance students over the past few years. Deakin University is renowned as being at the forefront of distance education, not only in Australia but overseas as well. Cavanagh and Lingham (1994) revealed some very interesting results in their investigations. Their statistics showed that off-campus postgraduate students do not make the demand upon the library's resources that would be expected. However because of the level of demand for getting material on interlibrary loan, they cost much more per student using the off-campus library service, than undergraduates. In addition to interlibrary loan costs, the complex nature of the postgraduate subject (ie. information) requests and their need for comprehensive literature searches combined with the extensive staff time involved all add to costs of providing a high standard of service to postgraduates. Cavanagh and Lingham also revealed that only 42 - 45 per cent of off-campus students make one request or more per year and that only 40 per cent of research students borrow material. Once again, this reinforces the proposition that many students can successfully complete their studies without the need for their home institution library.

Cavanagh and Tucker (1993: 69) produced an informative paper on the costing of off-campus library services. They found 'Postgraduate research students are expected to be expensive to service but there is often little hard data on which to

base such an assumption. Our data shows clearly that, for Deakin University at least, they are nearly seven times as expensive as undergraduates and that most of this is accounted for by the cost of interlibrary loans.' Although these studies are restricted to only one library system and are descriptive in nature rather than empirical, they still add to the literature in previously untouched areas. 'Information needs of external students: a survey of the information needs of external students enrolled at the South Australian College of Advanced Education and resident in Whyalla, South Australia' was the title of a Masters thesis by Ledo. Ledo's study investigated the library usage and library needs of external students in a remote area, ie., Whyalla (Ledo, 1993: 2). The emphasis was on the students' perception of their own library needs. Ledo formulated the questionnaires with input from relevant students which ensured a user-centred approach was undertaken. Ledo usefully employed a method not normally used and found that students tended to use a variety of libraries including their own institution's library plus others accessible to them in Whyalla. The thesis had limited relevance to this study though as there were only thirty-five respondents and none of them were undertaking postgraduate research.

Library provision for postgraduate distance students

'Studying for a higher degree by research at a distance is a topic which, at present, there is very little documented information' (Phillips, 1985: 23). In a similar vein, Rudd (1984: 110) commented that 'the main difference between research into postgraduate education and that into other branches of tertiary education is that far less of it has been done'. Nothing much has changed since Phillips and Rudd wrote those words a decade ago. More specifically the literature regarding libraries is even more scarce. Cavanagh (1994: 91) has commented on the:

> ... complete absence of discussion by distance educators on the role of the library as a support system for external students among the 250 papers presented at the 14th World Conference of the International Council for Distance Education in 1988 and among the 109 articles reviewed in the 10th anniversary issue of the journal, Distance Education in 1989.

This is a sad reflection of the importance academics and distance educators place on library services to off-campus students within the university system. If they do not consider that the library has a role to play in the education of distance students, it is very likely that their students will make little attempt to use libraries (Behrens, 1993: 20). The literature that does exist is nearly all written by librarians, from a librarian's perspective. Very seldom have academics given their perspective for the library literature (Burge, Snow and Howard, 1988: 12).

Over the years, many academics have belittled distance education as an unsatisfactory mode of education provision, especially at postgraduate level. Laverty (1988: 203) lists three reasons why academics object to postgraduate study by distance education: non-conformity with institutional educational philosophy; a lack of adequate resources and skills at the institutional and student levels; and the inadequacy of distance education methods. This study concentrates on the second assumption made (ie. a lack of adequate resources and skills at the institutional and student levels). Gorman (1986: 9) has remarked, 'for a very long time off-campus study or distance learning has been accorded subsidiary status in the tertiary education sector, with established institutions often regarding it as somehow disreputable or, at best, a necessary evil'. Bynner (1986: 23) comments about '... the belief that limited access to postgraduate library resources will prevent students from performing at the appropriate postgraduate level'. Bynner also commented

that 'unless a university is going to provide a comprehensive library service to Masters students, the postgraduate work may well be incomplete' (Bynner, 1986: 32). His concerns are reasonable and may be one of the reasons why so many postgraduate students use other libraries for their information needs. Cavanagh and Lingham (1994: 115) suggest the fact that nearly all of Australia's distance teaching institutions now offer Masters and PhD courses indicates that credibility is no longer regarded as a problem, but they do acknowledge Bynner's concerns. Their comments are backed up by the large increase in postgraduate distance education enrolments previously mentioned, and by Laverty (1988: 210) who commented that despite some difficulties, many traditional universities do enrol off-campus students for higher degrees by research.

The most recent and relevant Australian survey undertaken has been 'Library services for remote postgraduate distance education students: a report to the Department of Employment, Education, and Training' by the University of Central Queensland Library (1993). Library services to remote postgraduate distance education students were studied to investigate whether the provision of services could be improved using electronic communication. The objectives of the study were:

- to identify the library resource and information needs of remote postgraduate distance education students and classify the needs by mode (coursework or research) and by field of study;

- to investigate the innovative use of information technology to provide electronic access to information for remote postgraduate distance education students and delivery of information to such students; and

- to study what services are being offered by libraries to remote postgraduate students, how libraries were promoting the services, and the additional costs of delivering services to remote students (University of Central Queensland Library. 1993: viii).

This national survey of remote postgraduate distance education students: identified the needs of remote postgraduate students; identified the specialized needs of research postgraduate students; and identified the computing equipment that was available to students with which they could use electronic services.

The most relevant of the UCQ survey findings for this study were:

- the majority of students are not aware of all library services and the resources available to them;

- distance education students often find it more convenient and useful to use other university libraries;

- electronic access to library services and electronic delivery of information offer the potential for fast and improved library services to students;

- there are additional costs in delivering library services to remote students; and

- postgraduate distance education students make particularly heavy demands on library resources.

This study concentrated only on 'remote' postgraduate distance education students and their definition was very broad to say the least. 'Of the total distance education enrolments it is realized that a proportion (75 per cent has been suggested in the Ross Report) are urban residents and will have access to library material at host universities. The remaining students are defined as being remote and in need of special consideration regarding library services' (University of Central Queensland Library, 1993: 1). Students were classified as remote if they lived more than 150 kilometres from their home institution. Judging from this, many of the respondents may not have been remote from other major university libraries. Of the respondents, 26 per cent were conducting research for a Masters' degree or a Doctorate (University of Central Queensland Library, 1993: 11). McKinlay's (1990: 598) opinion on remoteness put it in perspective. He said 'remoteness only matters when you want to be somewhere else or when something that you want, be it supplies, services or facilities, is somewhere else, far away.'

As there was so little written on the topic of library provision for postgraduate distance learners, Macauley (1996) based his Masters thesis on the subject. The title of the thesis was 'Is the home institution library needed? the information needs of Deakin University distance education higher degree by research students: a user-centred approach'. Many of the findings mirrored those of the UCQ study, especially that distance education students often find it more convenient and useful to use other university libraries. Overall 86.3 per cent of respondents had used other libraries for thesis research, compared with 83.7 per cent of respondents having used Deakin University Library. Over seventy per cent of respondents used other university libraries; twenty-six per cent used the National or State libraries; and under twenty per cent used public libraries. These figures reflect the specialised information needs of research students.

A total of 77.3 per cent of respondents in Macauley's study were no more than thirty minutes away from the most convenient library (whether from home or work) that contained information related to their research, and over a quarter of respondents stated they were no more than five minutes away. The responses suggested that in many instances the students' research was related to their work and that work libraries were used much more frequently than the home institution library. Many of the respondents were academics at universities. Sixty-four per cent of respondents had received instruction or guidance from Deakin University Library staff in the use of the library or its collection, but only 26.3 per cent of respondents were given any guidance on how to carry out a research project specifically as an off-campus student from their supervisors when they began their thesis. Not surprisingly, Macauley's study found that higher degree by research off-campus students make significantly more use of libraries than their undergraduate or coursework counterparts.

Conclusion

Previous research has established that a large proportion of distance education students make no use whatsoever of their tertiary library (Winter and Cameron, 1983: 3). In the UCQ study the figure quoted was 70 per cent (University of Central Queensland Library, 1993: 21). Cavanagh and Tucker (1993: 67) suggest that only 42 per cent of all external students use the delivery service and Cavanagh and Lingham (1994: 117) say the figure for research students was around 40 per cent using some earlier statistics. Macauley (1996: 71) found that nearly 40 per cent of postgraduate research students surveyed made little or no use of the home institution library. The non-usage figure for postgraduates at the University of South Africa, according to

Poller (1987: 200) is 32 per cent. Carty's study of the United Kingdom, Canada and Australia found 25 - 57 per cent of external students used the delivery system provided by the parent institution (Carty, 1991:38). Interestingly, Barkey (1965: 115) found in his American study that 63 per cent of on-campus students did not borrow material during the survey period. Winter and Cameron (1983: 29) have also established that 75 per cent of higher degree by research students use other tertiary libraries and have by far the highest proportion of registration as reciprocal borrowers in other tertiary libraries as compared with all other levels of students.

The study by Macauley (1996: 74) established that 70.5 per cent of respondents used other tertiary libraries, and the UCQ study found 67 per cent of postgraduate students had used other tertiary libraries to satisfy an information need (University of Central Queensland Library, 1993: 18). Of those students 79.1 per cent gave 'close proximity' as the most popular reason for doing so. 'Greater convenience' at 34.5 per cent and 'availability to choose materials for themselves' at 47.5 per cent were other factors. Academics at other tertiary institutions made up 13 per cent of the students surveyed in the UCQ study (University of Central Queensland Library, 1993: 24). This is also verified by Cavanagh and Lingham (1994: 125) who stated 'many of the postgraduate students, particularly education students, are faculty members at other tertiary institutions and use of specialized workplace libraries is frequent.'

It is obvious that postgraduate research students studying by distance education satisfy their information needs in a number of ways. It appears that the majority of these students make use of other libraries in preference to, or in addition to, using the library of the institution in which they are enrolled. According to the scant literature on this topic, the reasons are quite pragmatic: convenience, access to material not held by their home institution library, and to browse. It is also likely that many of these off-campus research students have access to specialist collections at their place of employment.

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The attitudes of lecturers and students to prerequisite subjects

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Abstract

This study investigates the relationship between prerequisites and the related advanced subjects. A pilot survey was undertaken to help define the objective of the study. The Likert rating scale and Analysis of Variance were used as tools of analysis, to measure the attitudes of lecturers and students to prerequisite subjects, and to determine if there were significant differences in opinion between students enrolled in the major discipline areas. The result of the study suggests that prerequisites provide the necessary basic skills and contribute to students' understanding and performance in the related advanced subjects. They also contribute to the development of analytical skills. However, there was only weak agreement with the hypothesis that a pass grade in prerequisite subjects be made compulsory before students proceed to study the advanced subjects. The agreement was slightly stronger on the part of lecturing staff in comparison to that of the students surveyed.

Introduction

Prerequisite subjects are useful in providing the foundation knowledge necessary for students'[1] understanding and performance in the related advanced subjects[2]. They assist in assessing the competence of students in the subject area before they proceed to study the related advanced subject, and in identifying the relevance of the advanced subjects to a professional career. Prerequisite subjects also contribute to the development of generic skills[3]. Their presence also helps to identify and remove incompetent students from the student cohort (Kramer, 1993). Students who have successfully completed all the required prerequisite subjects have a better chance of success in their examinations (Lander and Kangas, 1992).

However, it is argued that prerequisite subjects provide an impediment to flexibility in the subject study area and students are forced into a particular pattern of study. Some observations have also been made that a prerequisite structure is only suitable and advantageous in some disciplines since some advanced subjects do not require extensive background material. Prerequisites have an impact on the time required to complete a degree course, if sparse resources do not permit subject

[1] Unless otherwise stated students refers to internal and external students.
[2] Advanced subjects refer to second and third year related subjects.
[3] Generic skill's are oral communication, presentation, writing and analytical skills.

offerings in all Sessions and so there is a restriction in the available subject choices (Kramer 1993).

The purpose of this study is to analyse the attitudes of lecturers and students to prerequisite subjects and particularly the functions which the prerequisite subjects are believed to perform.

This paper is organised as follows: the methodology is discussed; a summary of the related literature is presented; the survey results are analysed; and a summary, conclusion and policy recommendations are provided in the final section.

Methodology

Identification and selection of related advanced subjects

Second and third year subjects for which there was a compulsory prerequisite subject were identified and selected. These subjects were selected from the major discipline areas offered by the Faculty of Commerce.[4]

Survey questionnaire

A pilot survey was undertaken to meet the objective of the study and to assist in determining the methodology to be followed. A mail questionnaire containing closed questions was designed. Respondents were offered alternative choices such as: strongly agree, agree, neutral, disagree, strongly disagree. The questionnaire was pre-tested in order to decide what modifications were needed to make it work more efficiently; and then further reviewed based on the suggestions made by lecturers and students.

Sampling procedure and sample size

A list of 8580 students[5] who had studied one or more of the advanced subjects during the academic year 1995 was drawn from the Students Information System.

A systematic random sampling method was used to select the sample size from the student list, ensuring that students from all the discipline areas were represented in the sample. Accordingly, 442 students[6] representing about 5 per cent of the total number of students were randomly selected. All lecturers[7] who were involved in teaching in the Faculty of Commerce were included in the staff sample.

Data collection

The survey had two phases. The first sought information from all teaching staff engaged in teaching the major disciplines on the contribution of prerequisite subjects to students' understanding and performance in the related advanced subjects. The second phase gathered information from students enrolled in the related advanced

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[4] The major discipline areas include Management, Human Resource Management, Economics, Accounting, Marketing and Public Administration

[5] The list of 8580 students consists of 5,551 external and 3,029 internal students.

[6] Two hundred twenty internal and two hundred twenty two external students were selected.

[7] Eighty four lecturers were engaged in teaching.

subjects on the basic theoretical knowledge, generic skills, professional career guidance, and in the development of continuous learning and other relevant factors that have been assumed to be provided by prerequisite subjects

About 20 per cent of the sampled students and 48 per cent of the lecturers completed and returned questionnaires.

Data analysis

Likert scale
To measure the strengths of students' and lecturers' attitudes to the relevance of prerequisites, a Likert rating scale was used. The alternative answers were assigned scores and the respondent's attitude was measured by his/her total score. The total score was divided by the number of the respective respondents to get the mean score. The weighting system used was as follows: strongly agree (5), agree (4), neutral (3), disagree (2) and strongly disagree (1).

Analysis of Variance (ANOVA)
A single factor Analysis of Variance was used to determine if there was significant difference in opinion between students enrolled in the different discipline areas.

Related literature review

The use of prerequisites as both entry criteria and part of the course structure requirements has been an issue of debate for some time. Academics, Education Ministers, employers and students hold a range of opinions on the use of prerequisite requirements for entry into programs and to manage course progress. However, despite this wide ranging interest there is little literature available. The literature which addresses the use of prerequisites is relatively recent , and can be divided into two distinct groups: prerequisites as entry criteria, and prerequisites within course progression.

The other primary area of concern relating to entry criteria is the use of and type of prerequisites required for entry into MBA (Master of Business Administration) programs in the United States. Anger and Wong (1994) advocate an increase in the work experience requirement, while Quartstein, Ramakrishna, and Vijayaraman (1994) have identified what they believe is a serious gap in the knowledge of MBA students. This is a lack of understanding and skill in the area of information technology which has prompted them to argue for the inclusion of such a subject as an undergraduate prerequisite.

Winter (1993) was more subject specific. The objective was to determine if a relationship existed between the level of student success in a business communication prerequisite and success in English, marketing and psychology coursework. The results showed that a change in the focus of the business communication prerequisite could lead to an improved success rate for students taking the advanced subjects. Apart from recommending a change of focus it did show a positive result from the use of prerequisite subjects within the course structure.

Lander and Kangas (1992) examined the success rate of students meeting all prerequisites at San Jose / Evergreen Community College, California, in an attempt to validate the continued use of the prerequisite system within the course structure.

The findings of their study showed that:

1 the overall success rate for students who met all prerequisites was 67%;
2 the overall success rate for students who took courses above their prerequisite level was 50%;
3 students meeting all their prerequisites had a 28% better chance of success than those taking courses above their prerequisite level.

Shadwick *et al.* (1988) conducted a comparative study, throughout Australia, of the impact of prerequisite studies within the entry requirements of higher education. They found that entry criteria had a significant impact on both the subject choices made by secondary students, and the courses offered by secondary schools. This finding raises important concerns over the issue of flexibility and freedom of choice for secondary school students. The focus of this study was Australian schools and higher education institutions, and it is likely that a similar pattern would be found in other countries; as all higher education institutions have established entry criteria.

The second category of literature on the use of prerequisites deals with the use of prerequisites within course structures. It is this use of prerequisites which is the focus of this study. Like the material covering the use of prerequisites for entry criteria this literature is relatively recent and principally of American origin.

Koefoed (1984) examined the validity of using prerequisites within the criminal justice curriculum at Kirkwood Community College in the United States. The result of this study showed that there was no significant differences in student success rate for those taking / not taking prerequisite subjects. However, the study did raise another important issue. With the change in college policy which made prerequisites advisable, but not compulsory, some concern was expressed as to whether the lecturers had adapted their subject content to meet the new 'open access' policy? If this was the case, was material being covered that would normally be addressed in other subjects, thus duplicating resources and costs?

Researchers at the University of Pennsylvania, reporting in the journal *Change,* detailed the results of an extensive cross discipline and cross institutional study into the structure of undergraduate courses. The findings indicated a pattern which was discipline based with increased emphasis on structure in the natural sciences, chemistry, physics etc; compared to that in the humanities. Therefore the natural science courses were much more sequenced in structure than the humanities courses. The influence of the discipline was found to be more important than the influence of the institution from which the course came. Statistical analysis was carried out for this paper and the results are reported. No statistical difference was found among the responses of the lecturers of the disciplines taught by the Faculty of Commerce.

The focus of studies into the use of prerequisites has primarily been in the areas of entry criteria and student success rates. While this provides some useful background material for this study it has also clearly identified the gaps or limitations in current literature. It is intended to add to the body of knowledge in this area by addressing the issues of staff and student perceptions of the use and value of prerequisite subjects within the Bachelor of Business degree.

Survey result

Lecturer and student perceptions of prerequisite structure

About 50 per cent of the lecturers[8] were in favour of prerequisites as a source of essential prior knowledge. The reasons for support included, prerequisites (i) help students to learn basic material (ii) assist students to gain the required skills and techniques of the specialisation area (iii) provide the foundation knowledge necessary to understand basic theory and (iv) help to make more effective use of time by not teaching basic and advanced material in a single session.

Thirty one per cent were somewhat ambivalent in their attitudes towards prerequisites. The suggestions made by the respondents were as follows:

(i) students should decide whether or not to study a prerequisite;
(ii) prerequisites should be specified only where necessary for conceptual development;
(iii) where an advanced technique requires knowledge of a basic technique; and
(iv) prerequisites should be as few and simple as possible.

A prerequisite structure is very useful in discipline areas such as the Natural Sciences, but in the Humanities, it is only useful in the development of methodology (University of Pennsylvania, 1994). However, prerequisites are only of particular use in some of the discipline areas in the Social Sciences, and most of the subjects taught in the Faculty of Commerce are classified under the Social Sciences. About 30 percent of the subjects require three or more prerequisites, through a subject hierarchy system, and 36 per cent require no prerequisite at all. It should be noted that the Charles Sturt University prerequisite system can lengthen course completion time, if a subject listed as a prerequisite has itself a prerequisite requirement. This implies that the advanced subject has in fact two or more prerequisites in a sequence or hierarchy.

About 60 per cent of the students surveyed were in favour of prerequisite subjects. The result of the students' survey revealed that:

(i) they believed that prerequisites help to prepare for advanced subjects;
(ii) prerequisites allow the acquisition of basic knowledge before moving to advanced subjects;
(iii) the prerequisite system provides structure and order to the degree program and;
(iv) prerequisites contribute to a habit of continuous learning.

[8] About 72 per cent of the respondents were from the disciplines of Accounting, Finance and Economics.

The latter point was only weakly supported however.

About 21 per cent of the students were not in favour of prerequisite subjects. The suggestions made were as follows:

(i) lack of relevance of a prerequisite to the advanced subject;
(ii) inadequate recognition of prior learning which could adequately replace the prerequisite;
(iii) the necessity to extend the period to complete a degree course either through prerequisite failure, structure problems, or subject session offerings;
(iv) some compulsory prerequisites were completely irrelevant and this was due to lack of consultation between the prerequisite subject coordinators and those of the advanced subject.

The mean score of students was 3.47. The mean for lecturers was 3.83 (see Table 1). This indicates slightly stronger agreement from the lecturing staff. The statistical analysis also indicated that there is no significant difference between the opinions of students of different disciplines regarding the above hypothesis (Table 2).

Table 1. Students' attitude to the introduction of prerequisites as a compulsory subject.

Discipline	Score
Management	3.20
Human Resource Management	3.69
Accounting	3.71
Marketing	3.23
Average score	3.47

Table 2. Summary of a single factor ANOVA result on prerequisites as compulsory subjects.

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	3.348077	3	1.116026	0.897497	0.448277	2.769433
Within Groups	69.63526	56	1.243487			
Total	72.98333	59				

P-value > than .05,
therefore there is no significant difference between the disciplines

Subject contents of advanced and prerequisite subjects

The result of the lecturers' survey revealed that there is no substantial overlap in the subject material contents of prerequisite and advanced subjects. The average score was between disagree and neutral (2.58). However, the mean score of students enrolled in the four major disciplines was 3.8, and the scores of each discipline area were as follows: Management (4.0), Human Resource Management (3.38), Accounting (3.42), and Marketing (4.15). The aforementioned Likert rating scale result suggests that there is a significant difference in opinions between the students who had studied Management and Marketing subjects. This suggests that there may be ground for a review of the subject content taught in the Marketing specialisation area. There is also a significant difference between the lecturers' and students' opinions on this point. Closer consultation between the teachers of prerequisites and the advanced subjects is needed in the opinion of the student sample.

The statistical result also confirmed that there is a significant difference between the disciplines as shown in Table 3.

Table 3. Summary of a single factor ANOVA result of the four major subjects material content

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	6.730769231	3	2.24359	3.094411	0.034099	2.769433
Within Groups	40.6025641	56	0.725046			
Total	47.33333333	59				

P-value < than .05,
therefore there is a significant difference between the disciplines

Student understanding and performance

The survey of lecturers agreed that prerequisite subjects contributed to student understanding and performance in the advanced subjects. Prerequisites have provided students with access to factual and conceptual knowledge, and the Likert rating scale results were 4.36 and 4.31, respectively. The students' survey also indicated that prerequisites assisted them in the understanding and performance of the advanced subjects as indicated in the Likert rating scale result in Table 4.

Table 4. Students' attitude to prerequisite subjects contribution to factual and conceptual knowledge

Discipline	Factual	Conceptual
Management	4	3.7
Human Resource Management	4.31	4.31
Accounting	4.21	4
Marketing	4.38	4.08
Average score	4.22	4.02

The statistical analysis confirmed that there was no significant difference between the disciplines as shown in Table 5.

Table 5. ANOVA analysis on prerequisites' contribution to factual and conceptual knowledge

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.873478922	3	0.291159641	0.734426	0.535954	2.772538
Within Groups	21.80448718	55	0.396445221			
Total	22.6779661	58				

P-value > than .05
therefore there is no significant difference between the disciplines.

Development of generic skills

The result of the lecturers survey did not strongly support the hypothesis that prerequisite subjects contributed to the development of generic skills overall. However, the mean score (4.17) suggested that prerequisites are useful in developing analytical skills. Likewise, the student survey result indicated that they do not agree with the hypothesis that prerequisite subjects contribute to the development of their generic skills (Table 6).

Table 6. Likert rating scale of generic skill's attributes

Skill	lecturers (score)	students (score)
Oral communication	3.14	2.85
Presentation	3.37	3.13
Writing	3.71	3.57
Analytical	4.17	3.85
Average score	3.79	3.36

The statistical analysis also revealed that there was no significant difference between the disciplines (Table 7).

Table 7. ANOVA analysis on prerequisites contribution to the development of generic skill

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.188827164	3	0.062942388	0.093057	0. 963565	2.772538
Within Groups	37.20100334	55	0.676381879			
Total	37.38983051	58				

P-value > than .05
therefore there is no significant difference between the disciplines.

Professional career and continuous learning

The average score (3.39) obtained from the survey of lecturers suggests that there was very weak agreement that prerequisite subjects are useful to identify the relevance of the advanced subjects to the professional career of students. The attitudes of lecturers on the contribution of prerequisite structure towards the development of continuous learning was slightly below agree (3.74). The views expressed by students in relation to the aforementioned hypotheses were also not very supportive. The mean scores assigned to professional career and continuous learning were 3.65 and 3.63, respectively (Table 8).

Table 8. The relevance of advanced subjects to students' professional career and continuous learning

Discipline	Professional career	Continuous learning
Management	3.40	3.7
Human Resource Management	3.69	3.62
Accounting	3.83	3.58
Marketing	3.69	3.62
Mean score	3.65	3.63

Summary, Conclusion and Policy Recommendations

The purpose of this study was to investigate the attitudes of lecturers and students to prerequisite subjects. A pilot survey was undertaken to meet the objective of the study, and a mail questionnaire containing closed questions was used to collect data from both teaching staff and students. A Likert rating scale was used to measure the attitudes of students and lecturers in relation to the relevance of prerequisite subjects. Analysis of Variance (ANOVA) was used to analyse for significant difference between the disciplines.

The survey had two phases. The first sought information from all teaching staff engaged in teaching the major disciplines in the Faculty of Commerce on the contribution of prerequisite subjects to students' understanding and performance in the related advanced subjects. The second phase gathered information from students enrolled in the related advanced subjects on how basic theoretical knowledge, generic skill, professional career relevance, the development of continuous learning and other relevant factors are provided by prerequisite subjects.

Four hundred and forty two internal and external students were randomly selected from a 8480 student population , ensuring that each discipline area was represented in the sample. About 20 per cent of the total sample students completed and returned the questionnaire. All lecturers engaged in teaching in the Faculty were included in the sample. However, it was only possible to gather information from about 48 per cent of the lecturers .

The responses obtained from both teaching staff and students did not fully support the hypothesis that prerequisites should be compulsory for all advanced subjects. The statistical result showed that there was no significant difference between the students of different disciplines.

The weighted sample opinion was between 'neutral' and 'agree' on whether there should be an imposed prerequisite structure. About 50 per cent of the student respondents suggested that prerequisite subjects provide the acquisition of basic knowledge and a foundation to be built upon; and help to identify the relevance of the advanced subjects to a future career.

However, about 30 per cent of the students included in the sample survey were also against having a prerequisite structure, and the reasons offered by the respondents included: that there was inadequate recognition of prior learning gained from other sources that could probably replace the required prerequisite, and that the outcome could be the necessity to extend the period to complete the degree course, either through prerequisite structure problems or subject session offering restrictions.

There was also a suggestion that advanced subjects did not require extensive background material and compulsory prerequisites are irrelevant. A source of the concern about the inadequate recognition of prior learning was that students may have work experience that could be equivalent to the relevant prerequisite and the policy for assessing this as prior learning was inadequate.

About 50 per cent of the teaching staff were also in favour of a prerequisite structure as a source of essential prior knowledge. However, 31 per cent of the teaching staff suggested that students should make the decision whether or not to study a prerequisite, and that a prerequisite should only be made compulsory when it is necessary for conceptual development. Both teaching staff and students agreed that prerequisites equip students with the necessary prior basic knowledge of the subject, and the statistical result showed that there was no significant difference in opinion between the students studying different disciplines.

The survey result indicated that students enrolled in the different disciplines have different opinions about whether the subject content in a prerequisite overlaps the subject material of the advanced subjects. The statistical result also confirmed that there is a significant difference in opinion between the students enrolled in the different disciplines. Marketing students were of the opinion that there was an overlap between prerequisite and advanced subjects, and Human Resource students were the group least aware of any overlap in the subject material content. However, responses obtained from the lecturers suggested that they believe there is no substantial overlap in the contents of the prerequisite and related advanced subjects.

Teaching staff and students have supported the proposition that prerequisite subjects contributed to students' understanding and performance in the advanced subjects. This has been attributed to providing access to both factual and conceptual knowledge. The statistical result also revealed that there was no significant difference between the disciplines. The survey analysis also revealed that both teaching staff and students did not fully agree that prerequisite subjects are relevant to the students' development of generic skills. However, there was an agreement that they assist to develop analytical skills. The findings suggest that the foundation subjects' content should be designed to focus on the development of generic skills.

The survey result generated from both students and teaching staff suggested that the sequencing of prerequisite and advanced subject is not considered as especially advantageous for students in developing a habit of continuous learning and in identifying the relevance of advanced subjects to a professional career.

Further quantitative research may be needed to identify the close relationship between prerequisites and the related advanced subjects. However, the results of this study have suggested that prerequisite subjects are relevant to study advanced subjects since students would be able to access the necessary foundation knowledge.

In the light of the above findings, the following recommendations are suggested:

- The University should take steps to review the current policy on prerequisite subjects. The current policy appears to be concerned only with the administration of a prerequisite structure and not whether one should be or should not be imposed.

- Consideration of the complex position where a student has the prior knowledge required for an advanced subject from experience outside of their course of study, but does not have full knowledge of the prerequisite subject, and whether or not a prerequisite should be waived.

- Policy changes should always be towards the reduction of impediments to a student's facilitating the completion of a course.

- Subject coordinators of foundation (first level) subjects should be counselled in designing their subjects to consult with the subject coordinators of advanced subjects. The objectives would be to reduce topic overlap, especially where it has been noted in Marketing and Management; and to ensure that the foundation subjects have the additional objective of commencing the development of the generic skills which are desired in students by employers.

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Anticipating shifts in teaching practice

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Abstract

At Charles Sturt University we are looking again at the nature of the learning resources we prepare and supply to students and to the contact arrangements we structure for students and teachers to interact. There is no structured formal review, but there is a flurry of policy formulation activity. In the interests of what Candy (1996) calls '*anticipatory staff development*', which involves generating dialogue about' *possible, probable and preferred futures*', the author presents a series of observations on some major changes in teaching practice that are being anticipated.

Introduction

As a new university we are anxious to adopt processes which may improve our competitive advantage. We want to build on the strengths we have established over many years of involvement in distance education. We want to ensure we meet the needs of our students - who are nearly all pursuing vocationally relevant studies, who are more often than not widely dispersed and mature aged, and who are both increasingly fee paying and more frequently drawn from overseas. We want to make better sense of our multi-campus operations and, for example, build more surely on a scatter of staff resources. We want to worry yet again the distinctions we have drawn between on and off-campus delivery. We want to ensure that subjects retain viable class sizes. We want to be forward looking in establishing electronic learning support infrastructure for use by students. We want to adopt cost effective and pedagogically rewarding teaching and learning processes.

Surprisingly perhaps, academic staff, with a few exceptions, have, hitherto, not engaged in debate about the kinds of general directions in which teaching and learning within the university are moving. Perhaps university teachers are more accustomed to focusing on questions more directly related to teacher/student relationships and educational frameworks established within schools or faculties. They sometimes forego, or miss, opportunities to formulate and express views on their wider teaching responsibility to develop efficient and effective environments for the support of learning at the institutional level. Perhaps they baulk at the challenge to existing practice which broadly based investigation and appraisal of current teaching practice might throw up.

Be that as it may, their involvement in debate and discussion at the sectoral and institutional level is certainly being encouraged by the NTEU with two special issues of its journal, *Australian Universities Review* - one on technology, which examines amongst other things the impact of technological change on teaching/learning, and, another on the organisation of academic work. Teacher lack of engagement will, no doubt, change as policy proposals with institutional-wide effects appear before Academic Senate.

Trends in University development

Exponents of notions of organisational change generally start with an explanation of ways in which wider societal, sectoral and institutional challenges are best met by such changes. Academic staff maintain familiarity with national and local policy directions and monitor their effects on teaching and learning in a range of appropriate forums. There is much to commend, however, the idea of academic staff contributing to decision making processes within CSU in order to enhance learning and teaching.

The following table identifies different interpretations of ways in which universities should develop. Such analyses obviously differ according to purpose. They are constructions of context which support particular lines of argument. So, too, there have been, and continue to be through the strategic planning exercise, attempts to depict the situation of Charles Sturt University in terms which will frame debate and act as appropriate broadbrush preparatory statements or preludes to specific policy decision making. They help in the pointing of directions and in establishing priorities.

Table 1: Different readings of trends in university development

Adapted from Hoare Report (1995)	Adapted from Smyth (1995)
• increased requirements of accountability; • changing nature of the workforce; • moves to mass tertiary education; • stronger industry links; • corporate management styles; • greater international competitiveness	• separation between those who conceptualise and those who execute the work; • increased managerial control under the guise of restoring competitiveness and responding to national priorities; • reduced worker autonomy; • academic skills fragmented so as to be more easily measured by performance indicators.

Needs of CSU

In a review of structures and processes at Charles Sturt University, the McKinnon Walker (1995) report identified the following needs:

- need to establish a common university culture in a multi-campus institution;
- need for a broadening and deepening of the research culture;
- need to move towards technological mediated flexible resource-based learning;
- needs arising form the policy of pioneering new professional courses;
- need to address the split between off campus and on campus subject delivery(McKinnon Walker, 1995).

Building on that report the Vice-Chancellor has attempted an interpretation not only of broad societal trends relevant to education, but also of directions for teaching and learning (Blake, 1996). He gave particular attention to the impact of technological change and envisaged the following educational shifts in this *'information age'*.

- from a local focus on teaching in classrooms and laboratories assembled on a particular campus to regional and global information networks with unrestricted access;

- from fixed and prescriptive curricula to curricula that are flexible, modularised and open-ended;
- from institutions that are self-contained and autonomous to ones built upon strategic partnerships with shared management and funding arrangements;
- from the focus on the institution to the focus on the student as client;
- from technology and media used simply to supplement face-to-face teaching to integrated multi-media methods as the principal means through which information is transmitted;
- from an emphasis on teaching in the delivery of education to learning;
- from the acquiring of knowledge to an ability to navigate through knowledge systems;
- from conditions of employment that provide for 'time out for learning' to ones that provide for work and learning to be carried on concurrently; and
- from academic calendars extending over several years to 'just in time learning'.

> Where education was once predominantly classroom-based and faculty directed, we are now beginning to see more self-paced, self-directed learning in a wide variety of individualised but interactive settings involving collaborative group learning environments. The delivery of education will be technology based, and available on demand. Learning need not be bound by place or time ....
>
> Delivery of programs by distance education involving the use of modern telecommunication technology has increased flexibility and the capacity of the provider to meet student needs more precisely and conveniently.

Whilst this might at first sight appear to be a conglomerate of loosely related changes, it matches fairly closely the cluster of predictions made by another commentator, Alistair MacFarlane (1995). The scope and several of the specifics of these prognostications are different but the general direction and the expected multifaceted changes in teaching culture with the new delivery options, which they identify, are similar. Both MacFarlane and Blake head in similar directions, even if they have adopted different starting and ending points. MacFarlane foresees the following shifts:

- from conventional face-to-face lecturing and tutoring methods of teaching and learning to distance education and asynchronous computer based learning-support methods;
- from passive to active learning especially through CBL support systems;
- from static to dynamic presentations using the new cheap methods of producing, transmitting and storing acceptable quality video and animation;
- from use of real objects to virtual objects;
- from impassive to supportive delivery;
- to greater use of multimedia;
- from unidirectional to interactive learning; and
- from broadcast to personal delivery

(Adapted from McFarlane, 1995)

In spite of the narrower range of his predictions, MacFarlane starts his consideration of such matters earlier than Blake does with a general analysis of learning and teaching. Whereas Blake explains how such changes are best evaluated in terms of their meeting lifelong learning needs, MacFarlane returns to following fundamental teaching functions and looks to the development of a thorough conceptual understanding being best supported with teachers by:

Orientating:	setting the scene and explaining what is required.
Motivating:	pointing up relevance, evoking and sustaining interest.
Presenting:	introducing new knowledge within a clear, supportive structure.

Clarifying: explaining with examples and providing remedial support.
Elaborating: introducing additional material to develop more detailed knowledge.
Consolidating: providing opportunities to develop and test personal understanding.
Confirming: ensuring the adequacy of the knowledge and understanding reached.

Conventional teaching methods fulfil these functions and will continue to do so, but there are other ways of encouraging and supporting student learning along these lines (MacFarlane, 1995).

Both Blake and MacFarlane anticipate major shifts in teaching and learning practices. MacFarlane explains that he uses that term *'shift'* to suggest change along a spectrum of possibilities. The notion of shift implies that some may have already moved varying distances in the directions indicated. It may also imply supplementation rather than replacement of teaching repertoires, and whilst MacFarlane hints at that, both are depicting radical rather than minor changes to teaching practice with the implementation of technology based teaching and learning strategies and different delivery options.

The implications of such changes for academics are considerable. Not least is the challenge the technologies bring to re-consider teaching strategies and to widen teaching repertoires. The particular pedagogical challenge another pair of commentators, Jevons and Northcott (1994), set is for institutions which have not been engaged in distance education and have not already themselves challenged the hegemony of lectures. They bemoan:

> ... if academics were more familiar with the range of possibilities, they would enlarge their repertoire of teaching techniques. Given the great variety of student backgrounds and preference, they would recognise that there are many best ways to teach'.

Demeaning language accompanies their observations on university teaching generally. So, for example academic staff, they say, have to be *'weaned away for an over-reliance on the lecture'* or *'Most university teachers have never been confronted with the question of choice of teaching techniques in a scholarly and critical way'*. The ways in which these statements go unchallenged indicates how remote debate has been from university teachers themselves. There has not been the robust exchange one might have expected. Professionally academics are committed to widening their teaching repertoires. In CSU, for example, there has been a willingness to experiment with new technologies for the provision of learning resources and in communicating with students.

This does not mean that complacency is warranted. Indeed, the on-going questioning of efficacy is a fundamental of the kind of reflective teaching to which we all aspire. Any frank assessment might find that the neither the goals or means of encouraging independent learning have been given the emphasis they deserve. I am not at all sure that we have always approached teaching as a communal activity that can be enhanced with collaborative effort. The AVCC (1993) has recommended that university teachers have a professional responsibility to acquire and develop knowledge and understanding of a wide range of teaching and assessment methods and of the principles which underlie student learning. Furthermore university teachers need to select from a range of teaching approaches and teaching media those which will help students to meet the subject and their own learning objectives

most effectively. Professionally academics are called upon not to baulk at the prospect of widening their teaching repertoires.

Jevons and Northcott also address industrial relations matters more broadly. They try to identify what they see as the chief concerns academic staff might have with proposals to blur the distinctions between distance and face-to-face teaching and with more technology mediated teaching and learning. Some, they suggest, fear the new technologies might add to the likelihood of them losing work, with the introduction, for example, of one centralised offering of, say, introductory accounting or introductory psychology. Some see a reduction in perceived status in scenarios in which a relatively small group of academics act as courseware developers and a growing number of casual staff supply tutor services. Some see other changes in the nature of their work, including for example the higher workloads associated with the development of sophisticated learning materials. Nearly all worry about the intellectual property rights associated with their authorship of curriculum materials. They fear the loss of a sense of subject ownership, and are disappointed at the prospect of what could be diminished face-to-face contact with students.

MacFarlane does not go to that detail, but he does, still with his broadbrush, depict some of the implications of the shifts he identifies at the levels of the institution, the teachers and the students. So, for example, he says, institutions will have to look to their administrative flexibility and support systems. Teachers will be encouraged to contribute to the development of shared resources and materials. Like James and Beattie (1996), MacFarlane sees the need for new promotion and reward schemes, which will provide motivation and a career development framework. He also notes that students *'will have learned how to swim in a sea of information, to use the rich resources of a supportive learning environment, to self-pace and self-structure their own programmes of learning'*.

The implications of different delivery options for students are addressed by James and Beattie (1996) and by Jennings and Ottewill (1996). The latter, for example, argue that too often attempts to mix open learning and face-to-face modes lead to a great deal of work on developing learning materials and too little on expanding teacher student communication channels. They argue that:

> ... at least as much care and attention is given to the planning of the [learning] encounters as to the preparation of materials.

Jennings and Ottewill (1996) argue that it is crucial to be explicit about the purpose(s) of learning encounters. For them the diversity of purposes to be served in learning encounters implies there may well be a diversity of formats in which those encounters can take place. Not all need to be face-to-face. How the encounter is conducted will depend upon its purpose. An adapted summary of the different purposes they suggest is presented in the following table.

Table 2: Purposes of learning encounters

For students they may be to:	For teachers they may be to:
• deal with individual queries and problems; • share problems; • articulate understandings • be counselled • know the lecturer.	• check learning; • update issues being dealt with; • counsel students; • know students; • consider revisions of learning materials • personalise the subject.

There is a familiar emphasis in Blake's remarks that might be expected of a Vice-Chancellor, given current budgetary constraints: *'Institutions faced with the need to rationalise their services, reduce costs and improve the quality and effectiveness of their teaching, have recognised the educational, as well as the economic, benefits of combining the methodologies used to deliver instruction on and off campus'*. The whole question of the cost effectiveness of technology based and supported teaching and learning is a central concern. Antagonists of what might be interpreted as management initiatives are dismissive of what they may regard as simply a cost cutting exercise (Jennings and Ottewell 1996). Is technologically mediated teaching and learning a good business proposition? Is there anything to the such changes that is more than a business proposition? How far are the claims of educational advantage a rhetoric that has been invented to urge an economic necessity?

There is also an unfamiliar emphasis in Blake's remarks that might not be expected of a Vice-Chancellor in a new university. The Vice-Chancellor's exhortations are more usually along the lines of encouraging research activity. The fact that he has used the occasion of receiving a prestigious award to speak on teaching and learning suggests that for him there is a new urgency for such matters to be considered, discussed and debated. It is important that such discussions and debates be, as MacFarlane suggests, multi-leveled and address the responses of and impact on learners, teachers, schools/faculties and the institution as a whole. It is obvious that investigations, appraisals and staff development activities are required to help the institution as a whole anticipate shifts in teaching practice related to expanding the range of delivery options and increased use of computer mediated communication. It is, as usual, staff's engagement in policy formulation forums and debates that will most surely provide for them appropriate preparation for such shifts.

In describing universities as learning institutions, Candy (1996) quotes from the *European Lifelong Learning Initiative 1994 : 'A learning organization ... shares its vision of tomorrow with its people and stimulates them to challenge it, to change it and to contribute'* In anticipation of an uncertain tomorrow, we are best involved, Candy suggests, in *'collaboratively creating the sort of teaching, learning and working environments which people would like to see'*. The prospect of having opportunity to give new consideration to the fundamentals of our teaching mission and how we best fulfil that mission is a challenging and exciting one.

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Resource based learning at CSU: Changing roles in learning and teaching

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Abstract

The recent budgetary cuts in the higher education sector have made it imperative for Australian universities once again to reassess their organisational cultures and search for further efficiencies in delivering their educational programs. At Charles Sturt University the proposed change agenda of resource based learning has important implications for the ways in which learning and teaching are conceptualised and practised. At the same time distance education does provide collective experience of the advantages and disadvantages of pre-packaged materials which places CSU in a good position to analyse the efficacy of resource based learning. This paper will explore these issues as a contribution to the debate.

Introduction

The context for the development of resource based learning in the past and present is both financial and educational. Financial pressures from the increasing numbers of students undertaking higher education and the present budget cuts to the sector, have given a sense of urgency to reforms in tertiary education of which resource based learning is but one. The education context of resource based learning cannot be defined so clearly.

Aspects of the educational reform include pedagogical, administrative, student learning and technology. Sometimes these are treated individually while sometimes together as was included in the reforms instituted by Peter Baldwin, the former Federal Minister responsible for higher education. Baldwin believed that resource based learning would improve higher education by 'using state-of-the-art technology to improve teaching quality and students' learning and performance' (Calvert, 1996: 2.) Under the Labor government, the Federal education department continued to develop strategies and practices to incorporate the methodologies and technologies of resource based learning for off-campus and on-campus students. These initiatives were designed to accommodate the growing numbers of students participating in tertiary education without increasing the resources of the sector (Staples, 1996).

In the debates about resource based learning there has been a polarisation of issues. On the one hand there are criticisms of the traditional lecture because it presents the lecturer as the main source of information for the subject, with teaching being described in terms of transmission of information (NBEET, 1994: 8). Counter to this is the concept that pre-packed material such as distance education material is stored knowledge (Staples, 1996: 2). Other aspects of the polarisation of the debates are that each side claims greater flexibility: lecturing is able to focus in greater depth on difficult areas of the curriculum; with pre-packed materials students are independent of time, location and sequence of subjects to be studied.

To explore the concept and application of resource based learning at CSU this paper starts with a historical description of resource based learning. The distance of the past will be used to review the concepts and practices involved in the proposed implementation of resource based learning.

Past understandings of resource based learning

There was a rapid expansion in the numbers of students participating in higher education in the twenty years after the second world war. The increased numbers of students and a greater diversity in their academic backgrounds, posed a problem for the expanding tertiary sector which had to meet the demand with limited resources. At the same time there was a serious questioning of the effectiveness of educational institutions and an examination of teaching methodologies, the complex nature of the real and hidden curriculum and the power relationship between the teacher and student (Illich, 1973) . Within this environment resource based learning was proposed as one of the solutions to meet all agendas (Clarke, 1982).

The first point to note is the decentring of the teacher from the education act. In explaining the difference between teaching and resource based learning Taylor (1971) decentres the teacher from the educational act by distinguishing between the passivity of being taught by a teacher from the activity of learning from a book.

> ... I am taught' by a teacher; but 'I learn' from a book... The syntax reminds us that we have shifted from the passive 'I am taught' to the active 'I learn'. Herein lies the essential difference between teacher-based and resource-based learning systems. The process of the former is based on the teacher and the support he (sic) requires, for example, a physically constraining environment for the class with aids such as the blackboard (sic) and desk to establish a position of authority, sets of books for large groups, the time-table, period bells. This process generally results in the pupil or student being taught and learning what he (sic) does in a relatively passive manner. In the latter, the system is based on the learner and the aids he (sic) requires: a centre in which his (sic) learning aids are stored and can be used, commonly called a Resource Centre. (Clarke, 1982, 29.)

The second point to note is student activity. It was argued that well produced resource based learning did more than ask for interaction at an intellectual level: it controlled the nature of learning; it consolidated learning; and provided feedback on the progress of learning. Thus students were able to develop active learning strategies. The strategies were active in the sense that students had the freedom to study at a time and location that was most convenient to them, and by being able to access the resources to meet their learning requirements. For some writers student activity in resource based learning also meant that students had the ability to choose their subjects. Taylor exemplifies resource based learning at the North East London Polytechnic where course features included 'the absence of any predetermined prescribed syllabus of course control'. In most cases, though, active learning referred to students taking responsibility for their own study time and directing their own study efforts with the guidance of specifically prepared resources. (Clarke, 1982: 27-36.)

Individual learning was also associated with active learning. Resource based learning was to appeal to the individual learning needs of each individual student. This was the perspective from programmed learning which in theory meant that there could be pre-packed materials to meet the needs of each learner. But as was experienced at the UK Open University, the costs of course production did not permit the production of multiple versions of courses. The solution was the development of the regional tutorial network. (Calvert, 1996; Harris, 1987: 52-4).

Resource based learning changed the role of the lecturer: the shift was from the teacher at the center to a producer of resource based learning material, usually within a team, to a facilitator of learning, an academic counsellor and the one who provided the occasional lecture. (Clarke, 1982: 34; Noble, 1980: 20.)

Advances in the theory and technology of educational practice had established a climate in which resource based learning flourished, with the Open University an example of the application of new technologies. New theories of education with the development of programmed learning and various forms of individualised learning such as the Keller Plan assisted in the development of packaged material that supposedly enabled the student to efficiently achieve learning outcomes. It also provided a means of activating students that was only conceived as being possible in face-to-face teaching. New media widely available in the 1970s enabled the development of learning materials in subjects that had previously been delivered only on campus. The new media were television, teleconferencing, and audio cassettes which were linked with high quality print learning materials. Another new technology was the use of computers in computer managed and assisted learning. Generally communication media enhanced the whole educational experience (Noble, 1980: 18-19; Clarke, 1982: 13-23).

Resource based learning used contemporary instructional design to develop sophisticated learning styles which located the student at the center; a shift which inevitably changed the teacher's role. In the promotion of active learning, students developed lifelong learning and information literacy skills. They became more independent and flexible learners by having the resources to study at their disposal and were independent of time and place constraints previously linked to institutional location and timetabling. Resource based learning also enabled institutions to cater for increasing student enrolments and a diversity of backgrounds of students with limited financial resources.

The contemporary debate

In contemporary writings about educational reform of on- and off-campus teaching and learning there are a number of terms are associated with resource based learning. Moran (1996) describes the *flexible learning system* at the University of South Australia which incorporates resource based learning. Jennings and Ottewill (1996) describe the *integrated open learning system* at the Sheffield Business School at Sheffield Hallam University which includes an aspect of resource based learning. The most common term, though, is *resource based learning* (NBEET:1994; Calvert, 1996; Ling, 1996; and Staples, 1996).

There is also a diversity of focus in the reform agendas. Moran's (1996: 1) understanding of flexible learning is underpinned by a constructivist philosophy of learning: 'Flexible learning is based on a constructive philosophy that shifts the emphasis in education from teaching to learning and the conditions of learning'. MacFarlane (1995) and Calvert (1996) focus their attention on modern instructional

technologies. MacFarlane (1995) assesses the use of technologies associated with asynchronous network learning systems, multimedia and virtual reality, arguing that these technologies enable students to shift from passive to active learning strategies. Calvert (1996:1) distinguishes between the 'usual' resources and 'something new and different' which includes 'purpose built learning materials and software that presents academic content and may encourage and assist students actively to engage the content'. Jennings and Ottewill (1996:17) concentrate on the administrative structures and the commercial advantages of the changes identifying the competitive advantages can be gained 'by being the lowest cost provider of a service or by differentiating a service from that of competitors in a way that is demanded by the customer.'. In describing the organisational change and approaches RMIT has adopted to stimulating reform agendas in this area Ling (1996:2) presents resource based learning as an administrative system within which there are a variety of pedagogical styles. Finally the NBEET (1994) report concentrates on the costs and flexibility of the resource.

Within this range of names and focuses, resource based learning has similar attributes to those described above. It is driven by a financial and educational agenda of reform and a strategy to overcome all of the above. It is perceived as a means of coping with a diversity of student backgrounds, as the introduction of new technology and as an administrative system. (NBEET, 1994; CAUT, 1996).

The issues of active and lifelong learning are also present in the contemporary debate. Moran (1996: 2) describes the lifelong learning agenda of the flexible learning scheme at the University of South Australia. Calvert (1996) in describing the new or different technologies refers to them as encouraging and assisting 'students actively to engage the content' and Jennings and Ottewill (1996) similarly encourage students to be responsible for their learning.

Distance and decentre

There has always been a similarity between open learning / distance education and resource based learning. Noble (1980: 28) says that 'Resource based learning included *all* correspondence courses' because it provides access to continuing education, uses 'distance techniques' in the preparation of the pre-packed materials and it uses educational technology in the exposition of the choice of media. Noble cites the ideal but the reality of the efficacy of educational technologists at that time during the establishment of the UK Open University course material was more complex and less crucial (Harris, 1987: 45-56). The link between resource based learning and distance education continues in the contemporary debate. Moran and NBEET make the point that resource based learning and distance education are similar but different. Moran (1996: 2) who uses the term flexible learning says that at her institution 'flexible student-centred learning is not being treated simply as the use of distance education techniques and information technologies to adapt classroom teaching' though it can be seen to be so. The differences and similarities between the two within the NBEET report is less clear. On the one hand it says that the two are similar in that they are:

i. similar to the way in which people will continue to learn after they leave university;
ii offers opportunities to benefit from economies of scale where student numbers are large, as they are in many first year classes;
v. helps to reduce educationally unproductive travelling time for part time students; and
vi. offers opportunities to earn from sales of materials.

They are different in that resource based learning provides a safety net in providing structured material within the flexibility of time and place of study. Resource based learning also may be used in multi-campus situations to provide cost effective course delivery. (NBEET, 1994:9-10.) Although this differentiation is questionable (Calvert, 1996: 4) the term resource based learning is preferred in the report over distance education because the latter still has not been accepted within academic and student communities.

> One reason for referring to resource-based learning rather than distance education is that there may be some resistance by staff and students to the concept of distance education as such and not necessarily to the use of resource-bases learning in the on-campus situation. ... Many, perhaps most, still regard distance education as a second best alternative ... (NBEET, 1994:12).

The difference between resource based learning and distance education though is not just semantic. It has to do with the place of the teacher in the learning act. Distance education is described as the quasi-permanent separation of teacher and learner (Keegan 1990:45) and as 'consistent non-contiguous communication' (Holmberg, 1995: 6).

There is a quintessential difference between resource based learning and distance education that is confused in the NBEET report. Resource based learning decentres the teacher and centres the learner in the education act. By decentring the teacher it is argued that students become more active learners, develop lifelong learning skills and take greater responsibility for their own learning. It can also mean that students are able to choose their own curriculum and subjects; it is more realistic according to Jennings and Ottewill (1996: 14) that students will have greater flexibility though not total flexibility as institutions and professional requirements will impose session and curriculum boundaries.

Many of the same features of resourcefulness by students are also required by distance learners. The development of independent learning skills, freedom with time and pace of study, the incorporation of active learning and strategies to develop deep learning approaches in the materials have been parts of distance education. These aspects of learning are not the result of a decentring of the teacher. They are developed because the lecturer is distanced from the student and the students are distanced from each other.

To reinforce the difference between decentring and distancing the lecturer, one can look at debates about the application of technology to distance education. Modern communication technologies such as email and the Web have been described as bridging the distance and as a result moving the teacher more to the centre of the educational experience for distance education students (Garrison, 1995; Nipper, 1989; Evans and Nation: 1993). Thus the NBEET report advocating the use of the distance education material called resource-based learning for on- and off-campus teaching confuses the debate and the issues involved. The report can be criticised for making assertions rather than providing evidence of the assertions. Sharatt (1996: 66) states that the economies of scale for the production of learning materials for example, relate to the material production itself and not to tutorial support for the students.

The debate at CSU

The experience CSU has gained from distance education can provide valuable experience in the debate about resource based learning. It is at this point that we come back to the polarisation of the debate. Advances in educational theory have meant that pre-packaged materials are not simply bodies of knowledge. Pre-packaged materials are not just knowledge based materials that encourage surface and rote approaches to learning and suitable for simple well structured subject material (Garrison, 1993). Garrison was advocating a cognitive constructivist view of teaching and learning to facilitate 'the construction of meaningful and useful knowledge structures'. Kember challenges this understanding and cites many studies that distance education students have a higher score for deep approaches to learning and lower for surface approaches, that pre-packaged materials do not prevent students from constructing their own meaning and that the approach of the teacher is a greater determinant on predicting the student's approach to learning (Kember, 1994).

Teachers who decentre themselves from the teaching and learning act and facilitate the learning, tend to encourage deep learning approaches in their students'; teachers who centre themselves and take a knowledge transmission approach conversely tend to depress the use of a deep approach to learning (Kember 1994). This applies also to face-to-face teaching as well (Ramsden, 1992).

At the same time Kember agrees with Garrison's argument that 'the provision of a channel for two way communication does facilitate a constructivist style of teaching. At CSU the principal means of institution-initiated two way communication are teleconferences, email and residential school. While there are no figures on the amount of email communication, only 25% of CSU subjects, and eight courses in 1996 had residential schools and 2.5% had teleconferences. Thus for most students two way communication was student initiated.

Whether resource based learning will encourage life long learning is another vexed issue. There was concern that students provided with all of the materials required to successfully complete their studies were bereft of information literacy skills (Dale, 1982; Jarvis, 1982; Shklanka, 1990). While the advent of the World Wide Web and other electronic communication does point to overcoming this access, recent studies of post-graduate distance education student use of libraries found a poor usage rate (University of Central Queensland Library, 1992-3) as students need to be provided with the access and skills to use the technology (Davison, 1996).

Persistence to study is another indicative factor of lifelong learning. Within distance education, attrition rates have traditionally been high even though students are employed in the area in which they are studying; as a result they are adult and study part time (Calvert, 1996). The attrition rate for the student cohort enrolling in 1990 was about 50% for distance education students and 35% for internal students. The comparison between these two figures is more alarming when it is recalled that most of the internal students would have completed their studies in that time while the distance students would be half way through their studies (Division of Planning and Development, 1994).

Conclusion

This paper has borrowed from Calvert's (1996) caution in the application of resource based learning. There tends to be a polarisation in the debate as well as a confusion of terms and focuses. The central issue is student learning. Despite the hype and urgency of the debate it is unwise to move away from that focus. Further, distance education has provided collective experience at CSU in the design of per-packaged study material that motivates and encourages deep approaches to learning. At the same time it provides experience of difficulties encountered by adult learners which raise questions about students coming straight from school who are less sure of their career path. In line with this, Calvert's conclusion summarises the complexity of the debate:

> In short, I would draw three conclusions. First, no broad brush analysis is going to confirm or allay fears about increased use of resource based learning in higher education. Second, broad principles about effective teaching and learning in higher education apply equally to resource based learning and traditional modes. And third, effective teaching and learning need development support at the outset, careful monitoring and evaluation and provisions for making regular improvements. (Calvert, 1996)

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