The application of distance education media technologies by the University of Windsor to meet the needs of adult students.

Margaret Landstrom

University of Windsor

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THE APPLICATION

OF

DISTANCE EDUCATION MEDIA TECHNOLOGIES

BY THE

UNIVERSITY OF WINDSOR

TO MEET THE NEEDS OF ADULT STUDENTS

by

Margaret Landstrom

A Thesis

submitted to the
Faculty of Graduate Studies and Research
through the Department of
Communication Studies in Partial Fulfillment
of the requirements for the Degree
of Master of Arts at
the University of Windsor
Windsor, Ontario, Canada
1987

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ACKNOWLEDGEMENTS

Important in the development of this study was the assistance of several people.

My thanks are first of all to my advisor, Professor Hugh H. Edmunds, for his encouragement and guidance in this project. To the committee of Dr. Ronald W. Ianni and Dr. Walter I. Romanow I am grateful for their concern and consultations.

As the final project of a complete program, it is also a reminder of the many members of the Communication Studies Department who have assisted me in my studies, and colleagues from other institutions who have been generous with their time in contributing to my research.

My thanks to Dr. Gerald Booth, the other members of the Part-Time Studies staff and especially to Mary Bagley for her efforts in the project.

For his interest in the area and support with the study, I am grateful to Dr. Esio Marzotto who developed the survey from which this project has evolved.

Finally, I wish to acknowledge the encouragement of my family, especially Laura and Janet, who tolerantly shared my time during the process of my studies.
ABSTRACT
THE APPLICATION OF DISTANCE EDUCATION MEDIA TECHNOLOGIES BY THE UNIVERSITY OF WINDSOR TO MEET THE NEEDS OF ADULT STUDENTS
by
Margaret Landstrom
February, 1987
Advisor: Prof. Hugh H. Edmunds
Major: Communication Studies
Degree: Master of Arts

The purpose of this study was to assess the application of media technology to meet the educational needs of University of Windsor adult students. A study to determine current adult distance students needs and motivation was undertaken. The use of media in three particular case studies was assessed, followed by an evaluation of the University of Windsor's access to media technologies classified as audio, visual, and computer technologies. An evaluation indicated the technologies accessible and useful in the University of Windsor case.

The research indicated the effective use of media technologies in distance education programs varied with reference to three groups of students:

a) those accessible to campus;

b) those near a study centre or sub-campus; and

c) those who are remote and require a total distance format.
The distance program for each group of students must include opportunities for activities which meet the needs of those students, and will depend on the technologies available for each group. Courses offered for each group should use different combinations of media to help satisfy student motivational needs.

In summary, the appropriateness of the use of any media in distance education is affected by the other components of the learning content and environment. Media must be chosen which provide opportunities for growth and development, serve to encourage change in the student's habits and patterns of interaction, and give the student access to tutors and other university resources.
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CHAPTER I
INTRODUCTION

Print was the first instructional medium to be used in mass education. Knowledge and ideas in the printed form permitted learners to master information on their own with minimal if any contact with an instructor. The printed medium has been accepted as one of the most important components of conventional instruction.

The newer forms of media (visual, audio and electronic) are of fairly recent origin, and only relatively recently are being exploited for instructional purposes. These technologies, as Schramm (1977, p. 13) has stated are "simply information-carrying technologies that can be used for instruction." They are "extensions of the teacher."

The use of media to extend the work of the teacher beyond the classroom has become particularly important for those beyond traditional school age. Many adults continue to desire to learn throughout their lives but traditional educational outlets are not always accessible to them. In response to the demands of adults to participate in higher education while still maintaining their employment and other activities, learning institutions have offered programs which require limited attendance in a classroom. For those adults who did not have access to such classrooms even on a limited basis, providers of educational programs have produced learning packages the students are able to complete on their own.

Classroom education has been enhanced by the addition of media materials, other than print, which add interest and immediacy. Such materials
have also been incorporated into learning packages for those students who cannot reach classes. This is the basis for what has become known as Distance Education.

The word 'distance' is a misnomer in this context since accessibility to classes may have more to do with time constraints than separating geographic space. However, distance education is the current name for such educational programs, as evidenced by the change of name in 1984 of the International Council of Correspondence Education to the International Council of Distance Education.

Desmond Keegan (1983, p.15) has studied distance education programs and finds they have the following characteristics:

1) the teacher and student are separated.
2) an educational organization is involved in the preparation of learning materials.
3) technical media are employed.
4) provision is made for communication between teacher and student.

Increasingly, media and computers are being used to provide individualized instruction to supplement classroom activities. Since these are already being used to provide distance education, the practice of these two methods of instruction is converging. Tony Bates of the U.K. Open University (1984 conference at the University of British Columbia) has stated that "Distance education will be the primary mode of university education in the future."

The purpose of this study is to examine distance education, particularly from the perspective of determining the motivation of adult students. Dan Coldeway (1986) from Canada's only totally distance learning university, Athabasca, has found that learner success is influenced by motivational variables. Assessing methods by which these motivational needs can be
addressed using media technology will permit the design of distance education programs by the University of Windsor to meet student needs.

**The Problem.**

Adult students enrol in post-secondary studies to satisfy particular personal or professional needs. Increasingly, educational programs for adults use various media technologies to reach these non-traditional students who may be unwilling or unable to attend regularly scheduled classes. To provide a satisfactory educational experience, the educational access provided using media must address the motivation of the students to enrol in post-secondary study in order to attempt to meet their needs. The satisfaction of students with media-supported programs will be reflected in continuing enrolment, and in students' expressed contentment with their programs, as well as in institutional and instructor perceptions of student progress and competence.

The University of Windsor could reach many adult students using new media technologies. The application of media makes possible educational opportunities to those who otherwise would be denied access to post-secondary study. From other jurisdictions, it is apparent that the media are used to provide more than course content. (Project REDEAL, Athabasca, 1980, MacKenzie, Postgate and Scupham, 1975). Media uses also can facilitate contact between students and the institution, and among class members. These contacts help satisfy students' motivational needs. An identification of distance adult student needs will be the first consideration of this study.

There are many post-secondary institutions providing media-supported education for adult students. Provision of credit courses by what has become known as Distance Education is an attempt to provide educational opportunities...
to meet the needs of those who would find it difficult to enrol in regularly scheduled classes. Central to this study is an analysis of the methods used to provide media-supported education and the evaluation of the ability of these methods to meet adult needs.

Institutions make use of particular technologies in programs for various reasons. Decisions are made according to local availability and to the institution's perceptions of the value of particular media use in education. In this regard, the University of Windsor has access to some media materials and communications technologies which could be employed to provide media based education for adults. Analysis of this accessibility and media effectiveness in education will suggest which media technologies are applicable to the particular situation of the University of Windsor.

By an analysis of the media use at other institutions providing education at a distance and the effectiveness of various methods employed to meet student needs, an assessment of characteristics of media in distance education will be developed. This thesis will analyze the applications of media technology in providing opportunities for adult post-secondary education, particularly focussing upon the possible use of various technologies by the University of Windsor to meet adult students' professional and personal needs.

**Background.**

Recent demographic studies indicate that the population is aging (Foot, 1981) and that demands for educational programs are increasing from groups who previously did not make up a significant proportion of the traditional student body (Foot, 1981, Usdan, 1986, Waniewicz, 1979). Although the size of the 18-24 age group will decrease between 1986 and 2000, possibly affecting
full time university enrolment by traditional students who have just graduated from secondary school, members of the post 1945 baby boom will increase the proportion of the population aged over 30. The university part-time student population customarily has been drawn from this over age 30 group of adults. Therefore, there will be a predictable increase in the number of adults who wish to enrol in part-time university study in the 1980s and 1990s. (Foot, 1981).

Coupled with the demographic trend is an increasing emphasis on life-long learning, and recurrent education for the adult population (Waniewicz, 1982). It is no longer expected that young persons will finish their education by their early twenties, prior to finding a lifetime career. The trend is now to recurring periods in educational endeavours during adulthood. Some education is undertaken to prepare for increasingly complex jobs and some is to open the door to new careers or to career advancement. "The congestion on career ladders caused by members of the post-war baby boom who in the eighties will swell the 30-39 age group, will boost the need for learning." (Waniewicz, 1979). Many adults also enrol in further study for personal development (Neil, 1981).

With this increased need for learning, there are also also many adults who find it difficult or impossible to attend regularly scheduled classes. (Neil, 1981, MacKenzie, Postgate, Scupham, 1975). There are many reasons for students' difficulty in attending classes. Some students may be prevented by physical disability or transportation deficiencies. Some may have severe demands on their time because of family responsibilities or their employment that preclude regular class attendance. Others may be on shift work or involved in activities which make regular class attendance problematic. Some may
simply be too distant from a campus which offers the type of program they desire.

The field of education has experimented with various forms of technology, attempting both to add effectiveness and variety in conventional classes and to provide new educational opportunities. (Bates, 1984).

Correspondence classes began in the United States and Britain in the nineteenth century with the development of an efficient, affordable postal service. Home study programs in Europe and North America provided access to information and made educational qualifications possible for those who could not attend regular classes.

The use of media-supported education in various countries has been adopted for a variety of reasons. In some countries such as Australia where large distances separated pupils from their teachers, media materials were used to supplement and update traditional correspondence and home study courses. (Holmburg, 1981). The media materials did not add content to the curriculum but served to enhance the lessons and motivate students' learning.

In the early days of radio, there were many experiments using broadcast to provide education away from the classroom. Many were simply broadcast lectures which were often ineffective in providing instruction. Schools of the air created a conflict with the interests of broadcasters and advertisers who feared losing their audience during the airing of educational programs. In the 1940's, FM channels in North America were allotted to educational broadcasting. However, radio failed to attract a sufficient audience for educational programming although this use of radio did provide some limited access to a teacher and to learning materials for students who did not have
access to regular classes. Radio was generally considered a positive addition to teaching strategies, although its application was limited. (Saettler, 1968).

Attention turned to television in the 1960's as a better educational outlet. During the decade when the baby boom generation reached the age for higher education, television was used to provide an alternative to inaccessible and overcrowded classrooms. The University of Windsor produced some courses using closed circuit televised lectures at this time to teach large numbers of students in undergraduate classes. These lectures were not particularly popular with students who preferred classes with an instructor in attendance. They were not good television either in that they did not make use of the ability of television to demonstrate a concept visually. Scarborough College in Toronto undertook to use television extensively in its courses. However, the productions were considered poor substitutes for regular classes by both students and professors. Within a few years, Scarborough College abandoned extensive use of television. However, valuable insights were gained into what television could and could not do well.

Television was found to be an attractive medium to capture interest, demonstrate concepts visually, and to add the element of actuality or immediacy by taking students through an experience rather than describing it as would textual material. (Bates, 1984).

Television is not the only medium found to be useful in the provision of education for students who do not attend regular classes. Although television displays some aspects of content well (such as visible changes and dramatisations) other media can be employed to allow the students an active role in the educational process. For example, audio and video teleconferencing
permit discussion among class members and with the professor. The addition of the electronic blackboard or freeze frame or slow scan video may be useful in explaining some subject matter. Telephone contact and computer conferencing can also provide opportunities for the exchange of ideas and sharing of understanding. (Robinson, 1981).

Where students are unable to meet on campus, one strategy used by distance educators to reach students has been to provide a learning centre equipped with media materials, reference books and other supplementary information for students to use individually or in groups. (e.g. Open University, Open Learning Institute). In this way, modern technology, communications and transportation systems can be employed to counter any perception of isolation students in Distance Education programs may feel. The methods used to reach students have depended on the institution's perceptions of what strategies would best serve student needs given the available resources and institutional expertise. An assessment of student needs must be an important factor in a decision regarding the media technologies to be employed in the provision of distance education for adult students. It is important to assess the ability of media based programs to meet student needs before media techniques are employed.

General Orientation of the Study.

There have been many studies conducted by governments and institutions to determine the need for distance education programs. These have usually outlined the public's desire for particular educational services for potential distance education students. (e.g. Third System, 1981). Some investigations have explored the possible uses for media in distance education, mainly with
a view to media value in supplementing textbook content. (Knowles, 1985). Other investigations have analyzed the use of media technology in providing a method for the instructor to communicate with students at a distance to clarify subject matter. (Lewis, 1982).

In addition to determining what courses students wish and how to use media for both content and contact, it is advisable to understand students' motivation in order to provide educational experiences that assist students' levels of performance, their continuation in courses, and their desire to re-enrol. Media technology is used to reach distance students by many institutions. A critical review of these distance education efforts will bring to light any techniques which are effective in meeting student needs.

Not all techniques may apply in different jurisdictions because of variable expertise and accessibility. It will be necessary to narrow the choices used by a specific institution according to its particular situation. This study will focus on the particular situation of the University of Windsor.

Research Questions in Brief.

The following questions will guide the overall research process and collection of information for analysis.

1. What are the elements that motivate University of Windsor students who enrol for courses other than regularly scheduled campus courses?

2. In what ways can the new media technologies assist in the provision of University courses for students who are unable or unwilling to enrol in regular campus classes?

3. What are the necessary criteria for choosing the media to be employed by the University of Windsor in distance education programs to meet
the motivational needs of students?

Method of Study.

First of all, the study will critically review the motivation of University of Windsor distance adult students. Adult student motivation has been determined in two recent surveys which will be analyzed and discussed.

Next, this study will assess the use of media technology by other institutions offering distance education using a multiple case study design. The case study method is appropriate to the task of assessing the effectiveness in meeting adults' needs of various media technologies employed in distance education in other post-secondary institutions. The goal of the case study method is to relate these findings to analytic generalizations (Yin, 1985). The analysis of the case studies will therefore relate the findings to the adequacy of various media technologies to meet student needs. The purpose will be to use this information to suggest the appropriateness of media use in a particular institutional situation.

The unit of analysis of the case studies will be media use in other institutions; their effectiveness will be assessed according to that institution's evaluation and comparative criteria such as continuing use, student retention and enrolment, adaptations of technologies, and satisfaction of students and faculty.

The media have been employed by institutions to substitute for the content dissemination and personal contact of regular class meetings. This study will attempt to determine if uses of various media in the cases reviewed can be employed to satisfy the student motivational needs identified in the studies.

If the case studies indicate that some of the media technologies are
useful in satisfying students needs, the study will then assess the feasibility of the University of Windsor employing these media in distance education programs.

Limitations.

A limited number of case studies will be reviewed in this study. There are many post-secondary institutions world-wide employing media in distance education but a small selection of these will be the focus of the multiple case study. In choosing those to be investigated, several criteria were employed.

1. Cases will be drawn from degree-granting post-secondary institutions.
2. Degree programs at the institutions studied will employ distance education strategies in programs which lead to qualifications similar to those in some programs at the University of Windsor.
3. Cases will employ a variety of media technologies in Distance Education programs.
4. Institutions to be examined will have operated distance education programs for a period of time sufficient for assessments to be made of these programs and of media use in them.
5. Information from the case studies will be available in English.

The question of whether to study dual or single mode institutions must be addressed. The University of Windsor is a dual mode institution (i.e. offering both "traditional" and a limited distance education program). Any decisions the institution might make following this study will take into account its dual educational strategies. However, the purpose of this study is to assess critically media use to meet adult distance student needs; the institutions
with the most experience in this area are generally single mode institutions. Therefore, institutions to be studied will not exclude single mode institutions. The extent of media use is critical to this assessment. Both single and dual mode institutions can provide relevant data and will be included in the study. It is possible that if any differences in media-use effectiveness are evident between single and dual mode institutions, these will be relevant to the suggestions responding to the third research question.

The scope of this study will not include an assessment of the financial ability of the University of Windsor to undertake distance education programs. The feasibility of various levels of involvement in distance education activities would require comparisons of the merit of applying resources to various activities and administrative priorities regarding university programs.

The use of the terms "media" and "media technologies" in this study refers to those technologies which transmit sound and/or visual images (including words) from one location to another. These include telephone, radio, audiocassettes, television (whether delivery is by broadcast, cable, satellite or cassette) computers, and combinations of these technologies.

Chapter Outline.

The second chapter in this thesis outlines the University of Windsor studies on adult student motivation. The first study (Marzotto, 1984) describes the motivation of University of Windsor adult part-time students in Windsor and in the surrounding areas of Essex, Kent, and Lambton counties. "Since characteristics of the distance learner may be described in terms of demographics and primary motivating factors, the assumption can be supported that students currently enrolled in part-time studies form a subset of the
distance student population, i.e., have similar demographics and motivation but differ in ability to meet regular attendance requirements. (Marzotto, 1984). The second study used the revised questionnaire suggested by the first. In the second study, only students studying distance courses were surveyed. The comparison of the results of the two studies will identify any common motivational factors between the regular part-time student population and the distance learners. The assumption from the first study — that they are similar in terms of their motivation but differ in their ability to attend class — will be analyzed.

The third chapter will investigate the criteria applicable to the study of media use in education, particularly distance education. This chapter will establish the research guidelines for the particular case studies in the next chapter.

The fourth chapter will use a case-study methodology to investigate a limited number of examples of post-secondary distance education programs. The analysis of the programs selected will focus on the uses of new media technologies in distance education. The internal and external evaluation of media use in these programs will be reviewed to determine the usefulness of media materials in distance education programs. To assure construct validity, several sources of evidence will be used in each case study. Various studies and reports will be analyzed, interviews will be undertaken, newsclippings and other articles will be reviewed, and administrative policies will be searched. In addition to examining the uses of media in curricular content, the practice of media-related support services will be assessed, along with other types of student support in order to search for the methods
by which support services help to meet students' needs. Conflicting and supporting evidence for the findings in the case studies from the literature of distance education will be reviewed for patterns of effective media use.

In the fifth chapter, the internal and external media environment of the University of Windsor will be assessed, including current availability and future prospects for media access.

In the sixth chapter, the criteria necessary to assess media materials and delivery systems will be applied to the University of Windsor case. These will suggest the media technologies which are useful in meeting the student motivational needs as identified in Chapter II and the applicability of employing these at the University of Windsor based on its communication environment. Where the fourth chapter has indicated the value of any of the new media technologies in meeting student needs in particular distance education cases, strategies for employing these in University of Windsor distance programs will be suggested. The sixth chapter will indicate a media selection checklist which categorizes the criteria for media choices in distance education, as the basis for a particular distance education application.

The findings applicable to the three research questions will be summarized and applied to an assessment of media effectiveness in distance education programs. In addition, this sixth chapter will suggest areas for further study which arise from the research in this thesis.

Title of the Study.

The title of this thesis "The Application Of Distance Education Media Technologies by the University Of Windsor To Meet The Needs of Adult Students" identifies the three areas of research. These are: distance student
motivation, media use in education, and applications of media by the University of Windsor to meet distance student needs. These are the areas to be investigated in Chapters II and III, IV and V which will lead to the general conclusions in Chapter VI.
CHAPTER II
DISTANCE LEARNING STUDENT NEEDS

Introduction

An adult's desire to seek knowledge is motivated by a personal need. The literature describes many factors which may encourage or motivate a person to enrol in a formal program of learning.

Following the Tenth Anniversary International Conference of the Open University, Professor Michael W. Neil listed the general motivations of adult students as identified in the conference Working Group discussions. The groups perceived that distance adult students enrol to achieve a higher educational level for three main reasons:

1. To obtain specific qualifications
2. To upgrade their professional or vocational knowledge and skills
3. To study for the pleasure of learning, i.e. primarily for personal satisfaction or development. (Neil, 1981, p. 48)

An Athabasca University study (1981) indicated 40% enrolled for career reasons, 30% for educational reasons, and 30% for personal reasons. (Kaye, 1981, p.36).

When the Open University (U.K.) first admitted its initial students the reasons for enrolling were more specifically studied, and the results showed the following motivations: (McIntosh, N., Calder, J., Swift, B., 1976, p.36).

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Improve career prospects</td>
<td>23%</td>
</tr>
<tr>
<td>General desire to learn</td>
<td>22%</td>
</tr>
<tr>
<td>Make up for past inaccessibility</td>
<td>14%</td>
</tr>
<tr>
<td>Personal interest</td>
<td>13%</td>
</tr>
<tr>
<td>Access to new job opportunities</td>
<td>11%</td>
</tr>
<tr>
<td>Learn about a specific subject</td>
<td>9%</td>
</tr>
<tr>
<td>Upgrading/promotion</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>3%</td>
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These findings suggest that the motivation of adult distance students is related mainly to the desire for advancement in their careers. However, personal interest needs have not been assessed in detail in many studies, possibly because of the generally accepted attitude that most adults enrol in studies with a career in mind— that the purpose of education is to prepare for productive employment. (Neil, 1981). However, adults facing disruption or change in their lives often seek a new identifying role. (Heinze, 1983). Enrolment in a course of study is often chosen as a positive, structured new activity to regain a sense of order in life.

Also, while adults may have a motivational goal to achieve a new career level, their motivation to continue studying a given course may be based in part on the satisfaction they feel while studying. (Brindley, 1985). It appears that students need further explanation of content or for more general encouragement, feedback and support from the institution, tutors and peers. (Connors, in Kaye and Rumble, 1981).

A TVOntario study (Waniewicz, 1976) showed a desire to satisfy personal needs was a strong motivator in the undertaking of a program of study by adults. While many students' ultimate goals may be career-related, the process of participating in a particular course can meet other personal needs. Satisfaction of these personal needs during a course will assist students' desire to continue with their studies. (Brindley, 1985, Mani, 1985).

Distance students and other adult students are similar in many ways. Both groups consist of those whose time is not primarily occupied in their studies. They are young to middle aged adults, most are employed, or at home looking after young families, and most have severe demands on their time. 

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Attendance at classes is difficult for both groups for three main reasons. (Wanie\'wicz, 1976). The most common reason given was that people felt too busy to attend regularly scheduled classes. Secondly, some indicated affordability was a problem. The third reason for adults' inability to take courses was that they found classes were offered too far away to be accessible.

The studies at the University of Windsor were undertaken to determine the motivation of the enrolled distance and adult students and to assess the value of the media used, student contact strategies and support services to meet student needs.

1984 Study Summary.

A study into the motivational profile of University of Windsor part-time adult students identified three major factors. (Marzotto, 1984). The subjects of the study were a sample of 800 students from a population of 4000 enrolled in degree courses in the fall of 1983. A 133 item self administered questionnaire using a five item Likert scale response form was used to collect the data. Analysis was performed using the SAS Factor Analysis System.

The primary internal or psychological factor motivating the part-time student was composed of three elements:

1. (a) Social Intercourse

   Making new friends, meeting and associating with faculty, students, and people with similar interests.

   (b) Change of routine

   A desire for a change in the day to day routine, to be free or released from parents, spouse, children, associates for a time.
(c) Self development

To improve one's self confidence, self-image and self expression.

The first factor is summarized as the motivation to change one's patterns of social interaction.

The second psychological factor or major component in the motivation of the part-time student contains two elements:

2. (a) Career Advancement

Improving job skills and qualifications enabling one to compete better, qualify for promotion or prepare for job change.

(b) Status and Recognition

Improving ones role or position in a circle of friends or associates or community.

In summary, a second need exists to provide for a change in life patterns of status and social recognition.

A third and final primary factor in the internal motivational profile of the part-time student identified an inconsistency:

3. (a) Intellectual Growth

The pursuit of intellectual activity as a framework for intimate relationships.

(b) Freedom from Responsibility

An escape from the dull and boring things in one's life in search of the new and exciting.

In summary, the pursuit of intellectual activity as a release from the tension arising from the conflict between social freedom and duty and responsibility.

Briefly, the conclusions of the 1984 study provide the following information:

1. The demographics describe the typical part-time student
as employed in a professional or managerial position, earns an above average income and is married. Women outnumber men by 2 to 1.

2. There are three primary internal or psychological factors motivating the part-time student to enrol in University courses:

   (a) to provide a change in patterns of social interaction,
   (b) to provide for a change in life patterns of status and social recognition, and
   (c) to release the tension arising from the conflict between social freedom and duty and responsibility.

Part II of the 1984 study examined the external or environmental factors in the motivation of part-time adult students. The importance of the instructor, course content, learning materials, facilities and environment were studied in terms of their effect on motivation.

The primary external or environmental factors motivating the part-time student contained two elements:

1. (a) Professor at Centre

   The professor, in control of course content, assignments, examinations and grading puts him or her at the centre of the learning environment.

   (b) Student Interaction

   Perceived to be strong motivating elements were counselling, fieldwork, contact with other students, schedule and location of classes and quality of learning materials.

   The second factor in the learning environment perceived to be important to the part-time student had a single component.

2. Access to Learning and Leisure Resources.

   Access to the library, computer and media resources as well as social and recreational activities were elements motivating the students in the study.

   The third factor in the learning environment revealed by the data also
was comprised of a single component.

3. Effective Instructional Media Materials

The importance of the effective use of films, slides, overhead transparencies and video was indicated.

In summary, the three primary external or environmental factors impinging on the part-time students motivational profile were found to be:

1. The professor or lecturer at the centre of the learning environment.
2. Student interaction through access to learning and leisure resources of the University.
3. The effective use of instructional media materials and equipment.

1985 Follow-Up Study

The University of Windsor offered its first distant education course of instruction in the winter term of 1984. The success of this first attempt to reach a new student constituency prompted the University to increase the number of courses available using this mode of delivery. Three courses were offered in the fall of 1985 and the enrolment totalled more than 200. With a view to learning more about the students enrolled in the Distance Education courses the decision was made to do a follow-up study of the 1984 project with the Distance Education students as subjects.

Survey Instrument

The 1984 study recommended the deletion of a number of questions which were found to be irrelevant in terms of factor loading. A 60 item questionnaire was prepared using the 1984 instrument as a model. A copy of the distributed questionnaire is attached in the Appendix. The 1985 study was conducted as part of the methodology of this paper, to further the research of the Marzotto study.
Divided into four parts, the 1985 questionnaire was designed to probe:

1. The motivation for enrolment in the Distance Education course.

2. The attitude toward the Distance Education course as related to previous organized learning experiences.

3. An evaluation of the quality of the Distance Education course in terms of specific elements.

4. Demographics of the population

Selection of Subjects and Data Collection

The population for the study was readily identified and manageable in number. All students registered in the three Distance Education courses comprised the population. The population totalled 245.

Each telecourse in which these students participated included a textbook, study guide, and television programs (12 - 15 half hours per course). These programs were available also at local libraries. One of the three courses included additional readings. Two had infrequent optional class meetings. In all three, students could call the instructor on the telephone at any time for assistance. (Answering machine messages instructed students to leave their telephone number for a return call when professors were unavailable.)

The survey instrument was distributed in December of 1985. Subjects were asked to complete the questionnaire and return it (without identifying themselves on the answer sheet if they desired confidentiality).

The total number of computer mark-sense response forms returned totalled 123, or 50.2% of the total population.
Analysis of Data:

The mark-sense forms were read directly into a computer file. The data were analyzed using the Statistical Analysis System (SAS) which provided a print-out of:

1. Basic statistics including frequency of responses to each question, mean, standard deviation and range.
2. Correlation between and among all variables,
3. Reduction of data by factor analysis to a small set of factors or components which, when taken as source variables, account for the observed relationships and,
4. A plot of interfactor relationships providing a graphic picture of variable clustering.

Results

The purpose of this study was to determine the motivational profile of the Distance Education student and to determine the effectiveness of the instructional media materials, equipment and channels of distribution. In addition, the Distance Education student motivational profile would be compared with that of the 1984 study subjects to determine if one can generalize the factors motivating students in these two groups.

Demographics

Part 1 of the questionnaire is comprised of 14 questions which elicited demographic data from the respondents.

The demographic characteristics are:

1. Age:
   3.3% are under 20 years of age
   29.8% are 20 to 29
   43.8% are 30 to 39
18.2% are 40 to 49
5.0% are over 50

2. Sex:
23.1% are male
68.9% are female

3. Marital Status:
23.1% are single
66.9% are married
6.6% are divorced
3.3% are widowed

4. Number of children
31.4% have no children
15.7% have 1 child
24.8% have 2
19.8% have 3
8.3% have 4 or more

5. Employment Status:
9.1% are unemployed
48.8% are employed full time
30.6% are employed part-time
2.5% are retired
8.3% are homemakers

6. Occupation:
56.6% are professional or managerial
30.1% skilled manufacturing or clerical
7. Annual Family Income:
   - 7.8% receive under $10,000
   - 9.5% earn 10 to $19,000
   - 12.9% earn 20 to $29,000
   - 31.0% earn 30 to $40,000
   - 38.8% earn over $40,000

8. Access to cable TV:
   - 45.5% have access to cable TV
   - 53.7% do not

9. Distance to University or off-campus centre:
   - 5% are within walking distance
   - 26.1% are 2 to 5 km distant
   - 16.8% are 5 to 10 km distant
   - 18.5% are 10 to 20 km distant
   - 33.6% are more than 20 km distant

10. Physically Handicapped:
    - 2.5% are physically handicapped
    - 97.5% are not

11. Learned about telecourse from:
    - 42.5% University mailing
    - 7.5% Newspaper advertisement
    - 17.5% Another Student
    - 26.7% University Staff
    - 5.8% Cable or broadcast messages
12. Enrolled in first University Course:
   18.2% yes
   81.0% no

13. Enrolled in First Telecourse:
   88.4% yes
   10.7% no

14. Total number of courses enrolled in this semester:
   29.2% enrolled in only 1
   45.8% enrolled in 2
   11.7% enrolled in 3
   2.5% enrolled in 4
   10.8% enrolled in 5 or more

In summary, the typical telecourse student is a married female 20 to 50 years old with 1 to 3 children and employed full time. She has a professional or managerial job and has a family income of more than $20,000 per year. She lives more than 10 km from the University or its regional centres and is enrolled in her first telecourse in addition to 1 or 2 other courses. She learned about telecourses from the University, either from a mailing, a member of the staff or another student.

**Primary Factor Analysis**

The factor analysis test was run on questions 15 through 60 which includes Parts II, III and IV of the questionnaire. The purpose for doing this was to ensure that any interrelationship between variables in the three sections, motivation, telecourse attitude, and quality of media materials, equipment and distribution channels, would be identified.
The primary factor is the best summary of linear variable relationships. The student perception may be generalized in terms of the variables that load heavily on this factor. Table I describes the variables loading on Factor I listing those with greatest weight first and descending to the cut-off point of .400.

From Part IV, reasons for enrolling in a telecourse, thirteen of seventeen variables load with significant weight on this factor. The variables form three clusters, the first around "to earn university credit while working" and "to grow intellectually." The second cluster loading negatively with even greater weight may be described as the non-intellectual reasons which, by their negative loading, support the intellectual motivation. For example, to have more leisure time or to find a marital partner are clearly not intellectual motivating factors.

The third cluster of variables which load on this factor in a significant way are the quantity and quality of content, materials, assignments and the attitude variables of recommending or enrolling in another telecourse. These ten questions from Parts II and III support the intellectual pursuit component in terms of a positive experience.

Factor I may be described as the factor describing the students primary motivation for enrolling in a telecourse - to grow intellectually and to receive appropriate recognition. Factor I accounts for 19% of the total variance.
Table 1

Factor 1 Loading

Primary Motivation

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>FACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>45 Earn U. credit while working</td>
<td>.536</td>
</tr>
<tr>
<td>40 Quality of text</td>
<td>.529</td>
</tr>
<tr>
<td>30 Relevancy of content</td>
<td>.515</td>
</tr>
<tr>
<td>32 Quality of course outline</td>
<td>.511</td>
</tr>
<tr>
<td>16 Would recommend Telec</td>
<td>.479</td>
</tr>
<tr>
<td>15 Would enrol in another</td>
<td>.472</td>
</tr>
<tr>
<td>53 Grow intellectually</td>
<td>.455</td>
</tr>
<tr>
<td>41 Quality of study guide</td>
<td>.436</td>
</tr>
<tr>
<td>20 Telec more convenient</td>
<td>.424</td>
</tr>
<tr>
<td>33 Level/quantity of content</td>
<td>.419</td>
</tr>
<tr>
<td>34 Quality of individual assignments</td>
<td>.404</td>
</tr>
<tr>
<td>26 Quality of film &amp; video prog.</td>
<td>.407</td>
</tr>
</tbody>
</table>

|                                              | I    | II   | III  |
| 56 Have more leisure opportunity             | -.436| .311 | .178 |
| 60 Make new business contacts                | -.447| .076 | .488 |
| 51 Meet people different backgrounds         | -.497| .234 | .504 |
| 57 Free myself of Parents                    | -.618| .196 | .076 |
| 55 Satisfy companionship needs               | -.641| .145 | .429 |
| 47 Find a marital partner                    | -.644| .210 | .045 |
| 58 Free myself of bad habits                 | -.656| .307 | .221 |
| 50 Reduce feelings of loneliness             | -.704| .331 | .257 |
| 48 Meet a dating partner                     | -.748| .272 | -.019|
| 49 Meet a Sex Partner                        | -.766| .286 | -.033|

Variance accounted for by Factor 1 8.35 19%
The second factor or major component may be described as the second best linear combination of variables after the effect of the first component is removed from the data. Table II describes the loading of variables on the second factor. The primary component in this factor is access. Students perceive a need to have access to university resources, academic and social. Loading heavily on Factor II are questions relating to access to campus life, athletic facilities, social activities, library and media resources. Variables relating to quality also load on Factor II. Quality of learning materials and academic expectations are significant elements in Factor II.

Factor II may be defined as the accessibility factor describing a perceived need to be a member at the University community. Factor II accounts for 14% of the total variance.

A third factor or component may be defined as the linear combination of variables that account for the remaining variance after the first two components have been removed. Table III describes the variables loading on this third factor.

Again we find questions 52 and 53 - to satisfy personal interest and to grow intellectually - loading heavily on this factor. A second cluster includes the social contact variables and change of life routine, to meet students, make business contacts, companionship and, to free oneself from boredom.

Factor III may be defined as the secondary motivating component. Students enrol in telecourses in hope of meeting new people and changing their routine. Factor III accounts for 9% of the total variance.
Table II
Factor II Loading
Access to University Resources

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>FACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>36 Access to campus life</td>
<td>-0.058</td>
</tr>
<tr>
<td>16 Would recommend</td>
<td>0.479</td>
</tr>
<tr>
<td>37 Access to athletic facil</td>
<td>-0.025</td>
</tr>
<tr>
<td>38 Access to av resources</td>
<td>0.056</td>
</tr>
<tr>
<td>22 Telecourse is easier</td>
<td>-0.026</td>
</tr>
<tr>
<td>41 Quality of guide</td>
<td>0.436</td>
</tr>
<tr>
<td>15 Would enrol again</td>
<td>0.472</td>
</tr>
<tr>
<td>29 Course meeting expectations</td>
<td>0.372</td>
</tr>
<tr>
<td>39 Information on social activities and speakers</td>
<td>0.117</td>
</tr>
<tr>
<td>35 Library materials</td>
<td>-0.006</td>
</tr>
<tr>
<td>40 Quality of text</td>
<td>0.529</td>
</tr>
</tbody>
</table>

Variance accounted for by Factor II

\[
\frac{6.04}{43.5} = 14\%
\]
Table III

Factor III Loading
Secondary Motivation

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>FACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>52 Satisfy personal interest</td>
<td>.321</td>
</tr>
<tr>
<td>53 Grow intellectually</td>
<td>.454</td>
</tr>
<tr>
<td>18 Meet regularly with students</td>
<td>-.179</td>
</tr>
<tr>
<td>54 Get out of a rut</td>
<td>-.251</td>
</tr>
<tr>
<td>60 Make new business contacts</td>
<td>-.447</td>
</tr>
<tr>
<td>17 More in person meetings</td>
<td>-.217</td>
</tr>
<tr>
<td>55 Satisfy companionship needs</td>
<td>-.641</td>
</tr>
<tr>
<td>51 Meet people with different backgrounds</td>
<td>-.497</td>
</tr>
<tr>
<td>59 Free myself of boredom</td>
<td>-.298</td>
</tr>
</tbody>
</table>

Variance accounted for by Factor III
\[
\frac{3.92}{43.5} = 9\%
\]

First three factors account for \( 19 + 14 + 9 = 42\% \) of variance.
I. METHOD: PRINCIPAL COMPONENTS

PLOT OF FACTOR PATTERN FOR FACTOR 1 AND FACTOR 2

FACTOR 1
1
9
8
7
6
5
4
3
2
1
24 quality of film & video
34 quality of assignments
30 relevancy of course content
32 quality of course outline
40 quality of text
20 telecourse is more convenient
33 level/quantity of content
16 will recommend telecourses
15 would enrol in another telecourse
41 quality of study guide
55 convenience of broadcast schedule

43 earn university credit
53 grow intellectually

-1 - .9 -.8 -.7 -.6 -.5 -.4 -.3 -.2 -.1 0 1 2 3 4 5

36 freedom from bad habits
37 freedom from parents
35 satisfy companionship needs
47 find a marital partner
58 more leisure time
60 make new business contacts
51 meet new people
56 more leisure time
59 meet a sex partner
50 reduce feelings of loneliness
49 meet a sex partner
48 find a marital partner
47 find a marital partner
46 meet a sex partner
45 reduce feelings of loneliness
44 meet a sex partner
43 earn university credit
42 satisfaction of companionship needs
41 quality of study guide
40 quality of text
39 satisfaction of companionship needs
38 satisfaction of companionship needs
37 satisfaction of companionship needs
36 satisfaction of companionship needs
35 satisfaction of companionship needs
34 satisfaction of companionship needs
33 satisfaction of companionship needs
32 satisfaction of companionship needs
31 satisfaction of companionship needs
30 satisfaction of companionship needs
29 satisfaction of companionship needs
28 satisfaction of companionship needs
27 satisfaction of companionship needs
26 satisfaction of companionship needs
25 satisfaction of companionship needs
24 satisfaction of companionship needs
23 satisfaction of companionship needs
22 satisfaction of companionship needs
21 satisfaction of companionship needs
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18 satisfaction of companionship needs
17 satisfaction of companionship needs
16 satisfaction of companionship needs
15 satisfaction of companionship needs
14 satisfaction of companionship needs
13 satisfaction of companionship needs
12 satisfaction of companionship needs
11 satisfaction of companionship needs
10 satisfaction of companionship needs
9 satisfaction of companionship needs
8 satisfaction of companionship needs
7 satisfaction of companionship needs
6 satisfaction of companionship needs
5 satisfaction of companionship needs
4 satisfaction of companionship needs
3 satisfaction of companionship needs
2 satisfaction of companionship needs
1 satisfaction of companionship needs

FIGURE 1
ACTOR METHOD: PRINCIPAL COMPONENTS

PLUT OF FACTOR PATTERN FOR FACTOR2 AND FACTOR3

Factor 2

1. would recommend telecourses
2. access to campus life
3. would enrol in another telecourse
4. course meeting expectations
5. access to ATHLETIC facilities
6. information on social activities
7. quality of study guide
8. access to AV resources
9. would recommend telecourses
10. quality of library materials
11. quality of text

Access to University Resources

Figure II
PLOT OF FACTOR PATTERN FOR FACTOR 1 AND FACTOR 3

**FACTOR 1**

- 9
- 3
- 7
- 6
- 8
- 5
- 4
- 3
- 2
- 1

**FACTOR 2**

- 1
- 9
- 3
- 7
- 6
- 5
- 4
- 3
- 2
- 1

1. grow intellectually
2. satisfy personal interests
3. meet students regularly
4. more in-person meetings
5. get out of a rut
6. freedom from boredom
7. make business contacts
8. meet people with different backgrounds
9. satisfy companionship needs

**FIGURE III**

SECONDARY MOTIVATION
The plot of factor patterns confirm the tabulated results. Figure I describes the three clusters of variables in the Primary Motivating Factor. Figure II describes the Access to University Resources component. Figure III describes the Secondary Motivating component, social interaction.

Summary:

The motivation of students enrolled in telecourses has two components, a primary and a secondary component. The primary component has the elements: to earn university or degree credit, to grow intellectually and satisfy personal interest. It is worth noting that to improve job skills and qualify for promotion are insignificant in terms of motivation to study. The primary motivation of telecourse students may be defined as personal growth and development and recognition.

The secondary component in the motivational profile of telecourse students concerns interaction with others and a change of routine, perhaps one and the same thing. It is interesting that while a telecourse does not provide many opportunities for interaction with others it does provide for a change of routine. However, the significance of this factor is that students perceive the enrolment in the University telecourse as membership in the University community and desire further participation in it. The secondary motivational component may be defined as a need to change life patterns and interact with new acquaintances.

Students enrolled in telecourses responded positively to the questions "would you recommend telecourses" and, "would you enrol in another telecourse". They rate the print and media materials highly, and express a need to have access to the University's resources including: the library, media resources,
athletic facilities and social events and activities. Student expectations of enrolment in a University credit telecourse are much more than simply the flexibility of studying at one's own convenience and release from regular attendance at class. They expect to be full members of the University community and indicate that they desire access to the academic and social facilities and activities.

**1984 Study Comparison**

The 1984 and 1985 studies have used similar data collection instruments and similar statistical analysis techniques. Therefore a comparison of the results can be reported as valid and meaningful.

**Internal Motivation**

The 1984 study reported three primary internal or psychological factors motivating the part-time university student, a need:

(a) to provide a change in patterns of social interaction.

(b) to provide for a change in life patterns of status and social recognition; and

(c) to release the tension arising from the conflict between social freedom and duty and responsibility.

The 1985 study concludes that the Distance Education student is motivated by three factors, a need:

(a) to find opportunities for intellectual growth and recognition of achievement;

(b) to provide new patterns of interaction with personal and professional associates; and

(c) to provide a change in living patterns by abandoning old undesirable habits.
External Motivation:

The 1984 study reported the existence of two external or environmental factors motivating the part-time student.

(a) The professor is perceived to be at the centre of the learning environment and a key element in the motivation of the student, and

(b) Other students help create a motivating environment by the active social interaction that results from their getting together regularly.

The 1985 study results are consistent with the 1984 results in that a primary motivating factor is the need to change one's relationships. The part-time student can achieve this by going to a new place to be with new and different people. The telecourse student can meet this need by stepping into a mediated learning environment. In the 1984 study, students were successful in changing their patterns of social interaction. The telecourse student expressed a need for such a change but could not achieve it.

The 1984 study identified the need for social recognition and status. This was manifested in a desire to improve the employment situation. The 1985 telecourse student expresses a similar need but described it not in terms of promotion or job change, but in intellectual growth and recognition of achievement. The university has the power to give such recognition and, for the telecourse student, this appears to suffice.

Learning Environment

The 1984 study reported that part-time students perceived the learning environment to have three primary dimensions: the professor at the centre, the interaction with fellow students and the accessibility of the university's
The 1985 study indicated that, although the telecourse student did not have the same access to the professor or other students or the university's learning resources, the need was still expressed even though it was unmet. The dimensions of the learning environment for the telecourse student are perceived to be the quality of print and non-print materials, the relevancy of the content and the quality of assignments. Meeting with the professor or the professor's role in the learning environment is not a significant element in the motivation of the telecourse student. More important is the need to have access to the university's learning resources.

Discussion and Conclusions

The analysis and comparison of the two studies indicate the elements which motivate University of Windsor distance students, the subject of the first research question.

The conclusions drawn from the 1984 study were five in number:

1. A program of study for distance learners should provide the opportunity for a change in the student's pattern of social interaction.

This conclusion is appropriate for the 1985 study. The telecourse student expresses a need for change in life routine.

2. The courses of instruction provided should be selected to support the career aspirations of the student.

This conclusion must be modified in light of the results of the 1985 study. Intellectual growth and recognition rank high with the telecourse student, suggesting a broader range of course offerings not limited to career goals.
3. The distance learning program should provide the student with ease of access to professors, tutors and counsellors.

The 1985 study results would modify this recommendation. The telecourse students perceive a need for access to tutors and counsellors. Access to the professor does not rank as high as it did for the part-time student.

4. Distance learning course content should consist of complete packages of high quality independent study instructional materials.

The 1985 study results would rank this recommendation at the top of the list. Instructional materials are at the centre of the telecourse students' learning environment.

5. The distance learner should have access to all of the instructional and recreational resources available to regular university student.

Although impractical, this recommendation does reflect a need expressed by the telecourse student. The implementation of such a recommendation may be possible not in terms of the traditional meaning of access, i.e., physical or in person access to places and people, but through the use of communication technology. It may be possible to meet this need through teleconferencing, computer networking and audio and video cassette exchanges, thus permitting the telecourse student interaction with members of the university community and access to its learning resources. This recommendation is then applicable using media technologies to give access to the telecourse student.

In conclusion, the results of the 1985 study support the earlier research.
project. The 1984 study made projections for distance learning students based on research into the motivation of part-time students. The 1985 study had as its subjects telecourse students who may be more specifically defined as distance learning students. The assumptions of the 1984 study have been tested by the 1985 project and have been confirmed and the conclusions and recommendations, with minor modifications, continued to be valid.

In answer to the first research question, the research has shown that University of Windsor students in distance courses are motivated by:

1) a need for intellectual growth and recognition
2) a desire for change in their habits and patterns of social interaction

Distance students also desire assistance with their studies. In order to receive this help, students wish access to

1) tutors and counsellors
2) high quality instructional materials
3) other institutional resources

The research demonstrates that career development is not paramount for these students but they have other motivational needs which should be addressed. It appears that an educational structure based on technology alone will be insufficient to satisfy student needs in distance education.
CHAPTER III

ANALYSIS OF MEDIA IN DISTANCE EDUCATION

Introduction

Distance education methods have been developed to extend the availability of post-secondary studies for adult students. These students cannot usually participate in regular classes either because of time constraints due to job and family responsibilities or because particular programs are not available in their geographically accessible area. (Waniewicz, in Neil, 1981). In an attempt to meet the growing desire of adults to participate in post-secondary education even where their attendance at class is difficult or impossible, various institutions have introduced programs in which other types of contact and content distribution substitute for regular lecture attendance. These methods permit flexibility for the convenience of students to acquire knowledge at times and places which do not conflict with the students' other activities.

When educational programs use media technologies, these technologies can be viewed not only as carriers of content but also as methods by which student motivation can be encouraged. (Robinson 1981). When technologies assist in satisfying student needs, they act to reward the learning activity, thus encouraging the student to continue studying to master the content.

This assessment of the use of media in various cases views the dual roles media technologies can play in post-secondary educational programs in transmitting subject matter content and in satisfying student motivational needs.

Media Technologies

The media which are employed in distance education can be categorized into four general types, according to the technology used. These are: print, audio,
video, and computer technologies. (Keegan, in Sewart, Keegan and Holmberg, 1983).

Print

Most post-secondary courses, conventional or distance education, are based in the print medium. Books, journals, study guides, etc. provide the bulk of course content and course direction. Print materials can be used individually by students, with no special equipment. Print is generally transportable, available to all, and affordable. Print materials may also include course instructions, commentary on assignments and library materials. Printed materials may be produced at a learning site using a computer, program, and printer, but these are better classified under computer materials since they are not centrally printed in bulk and distributed in a finished form from the home site.

Audio

Using technology to carry sound between instructors and students audio information can be transmitted on tape, or on radio. The information can be formal (spoken lecture) or informal (answers to questions, comments on projects). Informal audio exchange may also take place by telephone where an instructor speaks to an individual student or receives messages on a telephone answering machine. Lectures can also be delivered to one or more off-campus sites using a telephone at the source, and speakers at the sites. Return audio for questions or comments from students is also possible using microphones and speakers connected to the telephone at each site and a telephone bridge for multiple site integration.
Video

The addition of information in the form of pictures or graphs can focus the learner's attention and enable the learning of visual identifications (Kemp, p. 19). Reproductions in print materials make them more attractive, and can be useful in helping the student learn effectively. Slides can also be used, and have the added advantage of being easily updated, and suitable for group viewing. Slide/tape productions add information using voice to visual presentations. Besides assuring completeness and an effective presentation, slide/tape productions can be re-used many times, without the presence of the expert. The program can be used in many different settings by an individual or group at their convenience with the assurance of consistent quality. Such programs are extensively used in the health sciences, in industry for both group and individual learning situations, and for public relations promotional activities.

Film generally includes sound with visual images. These images are not static as they are on slides, but show motion, action, and change. Film is powerful in being able to capture attention, show an event, demonstrate relationships, and create a dramatic impact (Kemp, 1985). Film has been extensively used in classroom education, but does not lend itself well to distance learning because it requires technical equipment not readily available to individual students, and the printing and distribution of film copies is expensive and cumbersome.

Video materials more widely distributed than films are those on television channels and on videocassette tapes.

1) Broadcast television - uses channels available on all home receivers.
(12 VHF channels, 50 UHF channels).

ii) Cable television - adds more channels than are usable on the broadcast (35-60 channels). Distribution by cable is only possible in areas of sufficient population density to support the system economically.

iii) Satellite - can transmit programs on 20 to 35 channels over long distances. Satellite transmissions can be locally distributed by cable companies which receive satellite signals for cablecasting to subscribers. Satellite time can also be purchased by an individual or company for transmission of its own program to another site.

iv) Videocassettes - recorded programs can be viewed by students at their convenience. Television programs distributed on broadcast, cable, or satellite can be recorded by students for future viewing, permitting time flexibility for students. These video materials are often much more expensive than print or audio materials to produce or buy. The receiving technology is more expensive than audio, but not out of reach for many students, and it is not difficult to learn to operate a recorder. The transmission of video materials can be low cost (cable or videocassette) or expensive (satellite or broadcast) depending on distribution methods and local availability.

v) Video teleconferencing is also possible, using microwave or satellite distribution for full motion video or telephone lines for slow scan or freeze frame video. The addition of visual information to audio teleconferencing enhances the appeal of the transmission but cannot be received by individual students. Sites with appropriate equipment to receive and/or receive and send back signals are required.
Computers

A computer can be used in Distance Education in several ways.

1) Instructional programs can be written on floppy disks and the disks can be copied and distributed to students for use on local or personal computers.

2) Students can have access to centrally stored educational programs via telephone dial up capacities to institutional computers from home computers.

3) Computers can be used as bulletin boards or messaging systems, linking instructor and students for assignments, questions, discussions, etc.

4) Computers can be used for graphics production and storage for re-creation at off-campus classroom sites, possibly with audio links via telephone to individuals or groups.

Choice of Media in Distance Education programs

Several criteria must be examined when media materials are being chosen for distance education programs. (Neil, 1981). These are: effectiveness in transmitting content, accessibility and acceptability for the institution and the student, and cost. A discussion of these criteria will indicate the factors to be applied to the examination of the media employed in the case studies in Chapter IV. This chapter will establish a basis for assessing media use in the case studies in order to answer the second research question.

Effectiveness in Transmitting Content

The media selected for courses must be appropriate for the particular content. The way in which different media present information should help
to meet the learning objectives of the lesson. In some learning situations, this requires interaction between students and the instructor for effective learning to take place.

Content may be categorized by subject matter – science, or humanities for example, but according to Romiszowski (1974) it is more appropriate in instructional design to identify the content according to the category of learning to take place. This may be problem solving, rule learning, concept learning, discrimination learning, learning verbal chains, psychomotor chains, or association or signal learning (Gagne 1967). Media presentations should help the student achieve the objective of the learning situation.

The most pervasive medium in education is print. Printed materials can outline and explain content, compare and contrast ideas, and present to the students an almost unlimited amount of information. Print can direct the students' attention and guide their thinking but interaction and feedback, while possible, are also slow and cumbersome.

Voice and other sound cues provide information and instruction. In order to learn a language, students must hear it. A medium which can greatly assist this process is one which provides audio cues, feedback, and repetition of sound (Romiszowski, 1974). The use of audiotape language material provides a model of pronunciation and language rhythm, important aspects of language learning. Similarly, the learning of music or drama can be facilitated using a medium which provides sound since it represents an example of competence in the skill. Lectures on radio or audiotape can provide variety in presentation, but, more importantly, the modulation of the human voice gives students "access to audible clues about the intended meaning" or "about the kind of attention to pay to
parts within the text as a whole "(Durbridge, 1984 p.99). Perhaps even more
telling for many students is the power of the spoken word to convey enthusiasm,
humour and indeed a human touch to their academic study." (ibid).

In situations where learning is encouraged by the exchange of ideas, the
immediacy of speech permits discussion, comparison, and distillation and
clarification of ideas (Robinson, 1984). It is the availability of prompt feedback
which assists the learning objectives in this case.

In distance learning situations, discussion by telephone or teleconferencing
permits the exchange of information using the medium of sound transmitted
electronically. Telephone communication "offers an immediate and interactive
form of contact which can reduce the sense of isolation experienced by remote
or off-campus students, and can help motivate them to persist with their studies." (Robinson, 1984, p.122).

Visual information provides identification detail and, in the case of motion
pictures on film or videocassette, also indicates action, motion or change.
An assessment of the effectiveness of still pictures (slides, photos, etc.) or
moving pictures (film, video, etc.) in transmitting particular information or
ideas will establish the most effective visual medium for particular visual content.
(Kemp, 1985). Pictures or models are used when it is inconvenient to use the
real thing, to better explain a principle by using a chart, or where the real thing
cannot be seen. (Romiszowski, 1974, p.90). Much film or video material is
used to "stimulate interest, motivate, paint a broad picture and establish certain
attitudes."(ibid, p.97). However, in terms of content, film or video is used most
effectively for "recognition and mastery of movements." (ibid).

Computers can be used for sending updated material which is read by
the student as is print. Graphic information (pictures) can also be transmitted on some systems, while some also allow for the student to send information back to the instructor and/or to other students. Conferencing permits students and instructors to exchange information and ideas, and can be considered a type of discussion. Discussion using computer transmitted words and graphics is different from oral communication either with or without a personal visual connection. The emotional subtext or oral language and facial expression may be more or less effective than word exchange, depending on the learning objectives.

A careful assessment of the learning objectives and content to be communicated will indicate the criteria for an appropriate selection of media.

**Accessibility**

In choosing media for Distance Learning, accessibility for the institution and the student must be assessed.

For media technologies to be useful in the provision of distance education, students must be able to obtain the media materials conveniently and use them effectively for their course of study. Therefore, students must have easy access to any equipment needed. Of significance also is the literacy of students regarding the technology used. They must understand the limitations and conventions of the technology since it would not be useful, for example, to provide elaborate computerized instructional programs for those who did not know how to use a computer. Institutions choose to employ particular media technologies if they have the staff skills and resources to produce the materials in-house, or if they have a ready source outside from which to purchase programs and they possess the necessary equipment for use. Accessibility for institutions and students such as those in this study may be considered as follows:
### TABLE IV

**MEDIA ACCESSIBILITY FOR THE INSTITUTION AND THE STUDENT**

<table>
<thead>
<tr>
<th>Type of Media</th>
<th>Institution</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Audiotape</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Radio</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Telephone</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Teleconference</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Slides, photos</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Film</td>
<td>Medium to Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Television</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Cable</td>
<td>Medium</td>
<td>Low to Medium</td>
</tr>
<tr>
<td>Satellite</td>
<td>Medium to Low</td>
<td>Low</td>
</tr>
<tr>
<td>Videocassette</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Videoteleconference</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Computer-disc</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>-dial up</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>-messaging</td>
<td>Medium</td>
<td>Medium</td>
</tr>
</tbody>
</table>

*Source: Aggregation of Accessibility research in Bates, ed. (1984), Rumble and Harry, ed.(1982) and Mugridge, ed.(1986).*
Acceptability of Media to Institutions and Students

Factors affecting institutional and faculty acceptability are quality, familiarity, and flexibility.

Instructors measure the quality of a media program according to the accuracy of the information content, and presentation skills demonstrated. Instructors feel more committed to a program which they helped design, or one which can be shaped to meet their standards. (Romiszowski (1974) calls this the "teacher control factor".

Faculty are often wary of slick productions from outside sources, particularly if they find the content trivial or incomplete.

If staff or faculty are familiar with particular technologies, these are likely to be considered for use in distance education programs. If the institution has resources already committed to particular types of materials or production, these will likely be considered for distance education courses. Familiarity with technologies and programs in similar institutions will be reflected in the choice of technology for distance education. Materials are more readily accepted by the institution if they can be examined in advance, and have been produced to be combined with other already known academic materials from credible sources.

For materials to be acceptable to students, they must address the competence level of the learners and be clear and relevant to assist, not hinder the students' learning. In choosing media, the attractiveness to the learner and suitability for the students learning style and preferences must be considered. (Romiszowski, 1974).
Economics

There are several factors that contribute to the cost of media materials for distance education. Production or purchase and distribution methods affect costs. Hardware (equipment) and software (program) costs must be assessed. Per student or per course costs will be affected by the type of program and number of uses possible. The likelihood of the sale of materials to other institutions will affect the cost/benefit analysis.

An institution may purchase materials for several reasons. It may be able to purchase programs for a fraction of the cost of producing them, because producers recover their investment by selling to many buyers. An institution may not have access to the content it wishes to include, or it may not have the resources, equipment, and/or skills to produce certain materials. Conversely, if an institution has the human and technical resources for a particular production and/or feels it can recover costs by outside sales, it may choose to develop its own materials for the distance education program. With presently available technology and media accessibility, the costs may be summarized as follows:
<table>
<thead>
<tr>
<th>Type of Media</th>
<th>Institution</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print</td>
<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td>Audiotape</td>
<td>Low to produce or duplicate for distribution</td>
<td>Low - inexpensive equipment needed</td>
</tr>
<tr>
<td>Radio</td>
<td>Low to produce</td>
<td>Low - available equipment</td>
</tr>
<tr>
<td></td>
<td>High to distribute (air time)</td>
<td></td>
</tr>
<tr>
<td>Telephone</td>
<td>Low -</td>
<td>Low - available equipment</td>
</tr>
<tr>
<td>Teleconference</td>
<td>Moderate to High for bridge, conveners</td>
<td>Low - uses telephone</td>
</tr>
<tr>
<td>Slides, photos</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Film</td>
<td>High to produce and distribute</td>
<td>Moderate - requires projector</td>
</tr>
<tr>
<td>Television</td>
<td>High - both production and air time</td>
<td>Low</td>
</tr>
<tr>
<td>Cable</td>
<td>High production and air time</td>
<td>Moderate</td>
</tr>
<tr>
<td>Satellite</td>
<td>High production, airtime access to equipment</td>
<td>High</td>
</tr>
<tr>
<td>Videocassette</td>
<td>High for production Moderate for distribution</td>
<td>Moderate (becoming commonplace)</td>
</tr>
<tr>
<td>Videoteleconference</td>
<td>High (for both production and distribution)</td>
<td>High - for equipment and access</td>
</tr>
<tr>
<td>Computer -disc</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>-dial up</td>
<td>High</td>
<td>Moderate</td>
</tr>
<tr>
<td>-messaging</td>
<td>High</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

Source: Aggregation of research in Bates; ed. (1984), Rumble and Harry, ed. (1982) and Mugridge, ed. (1986).
In general, costs are higher where the technology is new and sophisticated (computer messaging) and where human resource needs are great (in television production) (Bates, 1984). The cost of distribution (mail, telephone, air time) also may involve a significant cost.

Video production requires the skills of many persons (e.g. researchers/writers, on camera talent, production staff-director, cameraperson, etc, post production staff-editor) and sophisticated technical production equipment. The length of a production is a small fraction of the time involved to produce the program. However, a well-produced video program on tape or film can be the most effective medium for learning in certain situations because it presents life-like replication with movement appealing to two senses of the learner. Audio tape production involves just one or two people, and the equipment (both hardware and software) is much less expensive than for video or film.

Conferencing can be relatively inexpensive if it is audio only; the addition of video greatly increases both the costs of production and distribution. Audio-conferencing takes place on telephone lines; full video requires something more advanced such as cable or satellite time.

Media costs are specific to each institution according to its technical and human resources, and the efficiency of each medium to assist the learning of students as weighed against other methods of reaching learners.

In any educational institution, there are competing needs for resources. There are many worthwhile activities, not all of which can be funded since the institution has finite resources. The resources required to operate an effective distance education program in a dual mode institution compete
for attention with activities associated with traditional university functions. (Smith, in 1982 Broady address, ICDE). Because distance education programs have appealed to the non-traditional learner, there is some resistance to allocating resources to this new group. However, the demand for learning programs by those beyond early adulthood is increasing and will continue to do so with an aging population. (Foot, 1981). Several major companies are in the business of producing distance education programs as a profitable activity.

Summary

In order to evaluate media use in distance education programs, the four criteria of effectiveness in transmitting content, accessibility, acceptability, and cost must be assessed. This assessment will provide important information about the strengths and weaknesses of each medium in the particular educational application. Since media are usually used in combinations, the evaluation will indicate if the deficiencies of one medium can be overcome by the advantages of another.

This chapter has laid the basis for the examination of media use in distance education. The categories established by which to examine media use will assist in finding answers to the second research questions "In what ways can the new media technologies assist in the provision of University courses for students who are unable or unwilling to enrol in regular campus classes?" The criteria discussed in this chapter will be used to assess the media employed by the universities in the case studies in order to indicate the effectiveness of the media in meeting the needs of adult students.
Universities have been willing to serve adult students to some extent but programs rarely have been designed especially for adult students. For a variety of reasons, including financial restraints and attention have been able to enrol only those who could fit themselves into traditional offerings. A few notable exceptions in which programs have been designed for adult students serve as the case studies for this research.
CHAPTER IV
CASE STUDIES

Introduction

Chapter II identified the motivational factors of distance students at the University of Windsor. These can be classified broadly as a need to establish new interpersonal relationships, a need for intellectual growth, new activities, contact with other students and tutors, and a need for access to effective instructional materials, equipment, and recreational resources. Chapter III identified the characteristics of new media technologies, categorized as audio, video, or computer technologies. Applications from each category of media were analyzed in terms of their effectiveness in transmitting content, accessibility and acceptability to students and professors and costs for students and for the educational institution.

The examination of the case studies will review the choice of media in distance education programs according to the four criteria and will attempt to determine how the application of various media in particular educational programs satisfies the student needs as identified in Chapter II.

Each of the institutions studied has accepted the premise that the media can be used in teaching, and, more importantly, that students can learn from the media. Schramm (1977) asserts that "almost all teaching is multimedia" (p.13), and much research has shown that "students can learn effectively from the media, from any medium" (p.14). In The Conditions of Learning (1967) Gagne notes that no one medium will be ideal for all
applications. The detailed analysis of the use of each medium in the case studies will indicate the attributes of the technology and its contribution to the distance learning environment.

In all three cases, the use of the new media is supplementary to various forms of print. The contribution of the new media to course content is indicated but particularly noted is the application of the new media to meet student motivational needs.

Selection of Cases

A search of the literature of distance education systems and theory suggests there are several broad categories which can be used to compare distance education programs.

i) Level of Instruction

Some institutions, particularly in Third World countries and remote areas use distance education means to help in the provision of basic education for children and life skills for adults. In Western countries, distance education means have been used to extend access to senior levels of education for those who cannot attend higher education programs on a full-time basis. Time constraints as well as geographic accessibility are factors in the students' restriction to distance education programs. This study will select cases of post-secondary distance education programs to assess.

11) Accessibility for Adult Students

Some distance programs have strict admission requirements; others have 'open' enrolment (i.e. admission is possible for
any adult, regardless of previous academic record). The trend is toward open enrolment among higher education institutions (I.C.D.E., 1982) with any deficiencies in the student's preparation to be overcome with specialized upgrading or remedial programs. The Tenth Anniversary World Conference on Education of Adults at a Distance (1981) reviewed open access. They found

Openness of access...includes other factors in addition to openness of entry. For example, it would include the degree to which it is actually practicable for an individual to avail himself or herself of the learning facilities provided even though he or she was acceptable for registration. Distance and other geographical constraints, ability to receive broadcasts, disabilities such as being physically disabled or confined within an institution, and lack of money are all factors which can restrict access. In addition, the concept of openness of access can be extended to the degree of flexibility or timing allowed or arranged for students to start and pace their studies, and to the extent to which community groups can influence, for example, what kinds of learning opportunities are offered, and where. Neil (p.37).

Further, they concluded that "openness of access is positively and highly correlated with the extent to which an institution is dedicated to distance learning". (ibid).

Institutions chosen for detailed study will offer distance learning programs and will be flexible in enrolment requirements for adult students an indication of their commitment to free the learner from traditional contraints.

iii) Single vs Dual Mode

There are higher education institutions which offer distance
education as an adjunct to their traditional classroom programs, usually in an attempt to make programs conveniently available to more adult students. There are also institutions set up solely to offer programs for those who do not have access to regular classes. Both these dual mode and single mode institutions have used media technology extensively in distance education. The case studies outlined analyze media use in the delivery of higher education drawn from both types of institutions, since it is the ability of media to assist in meeting student needs that will be assessed, not the organization of the distance unit, nor the establishing of a single mode distance institution.

**Distance Education Defined**

Distance education programs have developed from the traditions of correspondence and home study programs. Such programs still exist, but since print is only one of today's media, this assessment will study the use of newer media technologies in the provision of adult higher education, specifically distance education which is defined by Keegan (1983) as including:

- separation of teacher and student
- influence of an educational organization especially in the planning and preparation of learning materials
- use of technical media
- provision of two-way communication
- possibility of occasional seminars
- participation in the most industrialized form of education.
Methodology

The case study methodology has been used in order to investigate media use in programs which involve extensive applications of the technology in distance education. The case study methodology has been chosen in order to investigate media use in programs which involve extensive applications of the technology in distance education. This research design includes a specific study question or questions, propositions or reasons for exploration, and a particular unit or units of analysis (Yin, 1985). According to Yin, the question(s) in the research should answer "how?" or "why?", and the investigation focuses on contemporary events, searching for generalizable findings using multiple sources of evidence. The examination of the cases searches for an answer to the second research question in what ways can the new media technologies assist in the provision of University courses for students who are unable or unwilling to enrol in regular campus classes? The selection of media use as the unit of analysis focuses on this particular aspect of the programs, permitting logical comparisons of the findings from each case.

Data have been collected from the following sources for each case study.

1) historical reports of events
2) administrative reports from institutions
3) research reports, external and internal
4) journal articles on the subject generally,
   and on specific aspects of programs
5) telephone conversations with faculty and administrators involved in Distance Education program
6) interviews with faculty and administrators
7) observation of media materials

In each case, a general description of the institution and its distance education program is outlined, followed by specific detail on the enrolment, instructional strategies and support services offered. Next, each category of media employed by that institution in its distance education program is discussed. Construct validity has been achieved through the use of multiple sources of evidence in order to base assessments on converging views of media use at each institution. By examining media use in each of the case studies, the study searches for patterns of evidence in the assessment of the role of the media in student motivation.

Where parallels in media effectiveness in programs are identified or common factors in the use of media to motivate students are discovered, these will serve to answer the second research question: "In what ways can the new media technologies assist in the provision of University courses for students who are unable or unwilling to enrol in regular campus classes?"
Case Study I. The British Open University

General Description

The experiences of the British Open University are important in the discussion of any distance education concerns. The Open University at its inception was the most ambitious distance education project ever undertaken in the industrialized world. The Open University project was fortunate to be able to bring together three factors: the political will to make the project a reality; British ability and efficiency in the production of print and media resources; and the orientation of programs to a ready adult population who were no longer accepting of a society where class should determine opportunity. The Open University accepted its first students in 1971. A decade later it was serving 85,000 students and by 1985 had awarded over 70,000 degrees (Open University Fact Sheets, 1986).

From the beginning, there were concerns about the academic credibility of a distance learning institution and the consequent value of the degrees it would award. British Universities were highly tradition oriented institutions in a structured class conscious society. The Open University overcame questions about the value of the education it offered by several means. (Perry, 1977). First of all, the University's governing structure and organization was based on the traditional British University model. Secondly, the Open University attracted well qualified academic staff with strong research backgrounds, and placed emphasis on continuing research in academic disciplines. Also, the print and media based products of the Open University were created to meet contemporary academic standards of accuracy and research as well as high production standards. Finally, the programs offered
by the Open University were sufficiently rigorous that Open University graduates who subsequently enrolled in graduate study have been found to be at least as well qualified as those from conventional universities.

"As with every other British university, it is not possible to teach effectively at the Open University without firmly basing the teaching programme on the research and scholarship of the staff" (Council of the Open University, February 1985). Besides research by teaching staff in their own subject areas, a massive amount of research has been undertaken by the Open University in the evaluation and development of the teaching and administrative systems of the University. There is a Survey Research department to provide information to guide academic and administrative decision making, a Textual Communication Research Group investigating student use of texts, and a Student Assessment Research Group monitoring student progress. Of interest in this study is the research of two other groups - the Continuing Education and Evaluation Group which reviews support services and the Audio-Visual Media Research Group which evaluates the use of broadcasting and other media.

Besides offering one of the most extensive distance education programs in the world, the accumulation of vast amounts of research on the programs makes study of this institution important in any evaluation of Distance Programs.

Programs Offered Undergraduate - Six faculties
- Arts
- Mathematics
- Science
- Social Science
- Technology
- Educational Studies
Higher degrees - by research

Mode - Single (Distance Education Programs Only)

Enrolment - 75,000 adult students (1985) in 130 undergraduate courses

Instructional Strategies
- written assignments and written criticism from tutors
- face to face tuition (one week summer schools required for all students)
- counselling/study centre services
- home experiment kits for science and technology courses

Support Services
- assignment to tutor counsellor for first course (remains counsellor for duration of student's enrolment)
- study centre administrative staff
- voluntary tutorials at local study centres
- special learning materials for handicapped students

Media Technology at the Open University

1) Audio

Foundation and associate student courses have weekly radio programs distributed on two radio frequencies, usually on weekends. Since 1981, the use of radio transmission has decreased as the use of audio cassettes has increased.

Radio and audiocassette programs have been used for lecture material and to provide supplementary material on areas of difficulty (Kaye, 1981).

At the Open University the functions of radio and audio cassettes are:

1. to complement print materials
2. to stimulate students' interest
3. to act as a stimulus for listening groups' discussions

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Radio programs pace the students' learning while audio cassettes allow students to control their own learning pace and permit repetition. (Kaye, 1981). Both are accessible for students and faculty, acceptable for distributing information, and inexpensive to produce and duplicate. Radio can be costly to distribute because of the cost of air time; audio cassettes can be inexpensively distributed using the postal service.

In Britain, where much broadcasting is publicly owned, the Open University found that the problem in using radio was not so much access to air time but the restriction of educational programming to unpopular air times, because of the relatively small audience these attracted. However, the times available for O.U. programs were also usually not convenient for the students. (Bates, 1983).

Bates has given several reasons for the popularity of audio cassettes at the Open University. Faculty find them convenient and flexible in courses to provide comment, integrate other recordings into a lecture and to interview experts. Also, in O.U. evaluations, students have ranked audiocassettes as the next most useful component to the texts. In some courses, audiocassettes were considered by students to be the most useful study medium. The convenience and control of audiocassettes was attractive to students. The informality of audio tapes is also important to students. "Students frequently comment that cassettes are like having a personal tutorial with the course author in the student's own room, a quality that appears to be lacking in radio programs, however skilfully they are made." (Bates, 1983, p.234).

In terms of student motivation, audiocassettes can therefore provide
a way for Distance students to satisfy several of the needs identified in Chapter II.

AudiocassetteS can be stimulating, thus freeing students from boredom, helping them grow intellectually, and improve their skills. CassetteS provide an informal contact between students and faculty, and because the technology is simple, clear and generally available, students have in their own homes access to the materials.

While radio can provide stimulating content, its formality distances the student from the professor, and although students have access to the technology, they may not have available the programs if they are unable to listen at particular broadcast times. For these reasons, only one third of new O.U. courses use radio programs (Harry, 1982).

Telephone contact between tutors and individuals or groups of students is also used by the Open University to reduce the student's sense of isolation to save travel time (for tutor and student) and to allow immediate solving of problems. This use of the telephone helps to satisfy student needs for personal contact and access to faculty, and can provide quick feedback regarding assignments.

In 1981 Robinson noted that most tutoring at the Open University is accomplished by letter or at study centres. In 1984 Robinson indicated an increasing use of teleconferencing for small group tutoring - to about 1000 hours per year at the Open University. An Open University Study (Bates, 1983) found individual or group telephone tutorials were useful to clarify difficulties or complex concepts, to promote discussion, to discuss assignments, to present short case studies, and for role plays and for some
specific subject content such as music analysis. Telephone tutorials (individual or group) were not effective for lecturing, unprepared discussions, transmitting complex instructions or details, or where the group membership was not static.

Telephone tutoring, especially that which must be arranged for a group reduces the convenience of distance education courses, but increases the students' opportunities to meet their needs for interaction with others, for personal development, and for recognition (by other students and the tutor).

ii) Video

The Open University concept was originally called "The University of the Air", so great was the importance placed on television instead of class attendance. At the Open University campus a B.B.C. production studio was set up which is capable of producing many hours of television programs each year. These studios have produced interesting, high quality documentary style programs for many O.U. courses. The number of television programs per course has been reduced in the last decade due to costs, and to the limited amount of broadcasting time available (Harry, in Rumble and Harry, 1982).

A. W. Bates (1984) lists the following strengths and weaknesses for educational programs on broadcast television at the Open University.
<table>
<thead>
<tr>
<th>Good For:</th>
<th>Bad For:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encouraging individual interpretations</td>
<td>Mastery learning</td>
</tr>
<tr>
<td>Stimulating creative thinking</td>
<td>Feedback/self-evaluation</td>
</tr>
<tr>
<td>Providing an overview or synthesis</td>
<td>Analysis (Of processes or situations).</td>
</tr>
<tr>
<td>Narrative/story-telling</td>
<td>storage of information</td>
</tr>
<tr>
<td>Demonstrating continuous processes</td>
<td>Reflection/deep processing</td>
</tr>
<tr>
<td>Modelling learning processes</td>
<td>Presentation of complex ideas</td>
</tr>
<tr>
<td>Raising awareness</td>
<td>Development of abstract thinking</td>
</tr>
<tr>
<td>Developing skills of evaluation</td>
<td></td>
</tr>
</tbody>
</table>

Broadcast is an effective method to reach many distance students, but because of the B.B.C. requirement that broadcast programs also have general public appeal, and because of the cost of production, the Open University severely limits the number of televised programs for each course. Broadcast programs are seen by all students at the same pace, whether they find the content simple or complex. The Open University finds this pacing encourages students to keep working on their courses; however, students who have difficulty with the material or find other demands on their time taking precedence over viewing can be left behind, floundering with the material.

Programs suitable for broadcast provide the quality content identified in Chapter II as the learning environment factor affecting student motivation. These programs can also provide a change in television viewing habits, and with the other course materials, a change in living patterns, but broadcast programs do not provide interaction or contact among students or with instructors.

At the Open University, repeated airings of programs are provided.
since there are always many students who cannot watch at a particular time.

Bates (1984) forecast that the rise in ownership of videocassette machines will permit increasingly greater numbers of students to view programs at their own convenience. However, in the U.K. he sees broadcast as the only feasible way to distribute the programs for students to tape off-air. For those who do not own video recorders the broadcasts will still have to be at times suitable for student viewing. Brown (in Bates, 1984) reported on a 1982 pilot scheme of a videocassette lending service at the Open University. Cassettes could be borrowed for home use or for viewing at a study centre. Students preferred home viewing, and those with access to the service watched more of their course programs than those without access to videocassettes. Videocassettes of Open University broadcast programs provide similar advantages to those provided by broadcast programs content and encouragement. However, pacing is not prescribed since the student is able to watch the programs anytime, repeat them, or stop the tape for review or research at any time. According to Brown,

there are considerable educational advantages to be gained from transferring broadcast television material to videocassettes. These advantages are both quantitative in terms of the effects on programme viewing rates and qualitative in terms of the way students are able to respond to the material. It is interesting to note in this context that of those students who watched programmes on cassettes, 61 per cent rated them as helpful or very helpful, compared with 46 per cent of those who viewed them as broadcasts. (p.46).

Informal faculty tapes or broadcast interactive (call-in) programs are not foreseen by the Open University.
At the Open University Study Centres, some videotapes can be viewed by students, but according to David Gallon of a London suburb centre, not all tapes are provided, and few students make use of them. Study centres are occasionally used for student viewing of films which are part of the course, but not suitable for broadcast. This use of the study centre does provide students with new personal contacts and can provide new patterns of interaction as well as distributing course content, but meetings can conflict with many students' personal or work schedules. Distance learning has been designed to minimize such conflicts; their imposition is a retreat from the ideal of Open learning for adults, according to Gallon.

The Open University has not used video teleconferencing in any of its courses. Student contact professors in writing, by telephone, or at study centres.

iii) Computers

The use of computers in Distance Education is very limited at the Open University which has concentrated its efforts on the production of quality print and video materials, and, to a lesser extent, audio tape.

Computers have been used to mark tests in order to give feedback to students quickly. In some jurisdictions, the time taken to respond to students correlates very highly with retention rates (Rekkedal, 1982, p.121). Prompt feedback motivates students and keeps their interest in the course high.

The use of Computer Assisted Learning has been used to provide course content and mastery learning programs. These can satisfy the needs of students for access to materials of high educational quality, but access to the hardware has been problematic.
Computers have been used at Open University Centres for teaching purposes for 14 years (Bates, 1986). Terminals at the centres are connected to the O.U. main frame for students to access computer assisted learning programs. However, Bates (1986) outlines several difficulties students encounter in using these terminals.

These are:

1) problems concerning booking available times
2) waiting time while queuing to use a terminal
3) terminal breakdown
4) inefficient use of student time
5) some students' inaccessibility to study centre

In addition, the time required and cost of producing effective computer assisted learning programs has inhibited widespread use in O.U. courses.

The Open University is now experimenting with the use of computers to provide a conferencing system among students and their tutor. Using personal computers, a modem, and dial up access to the main frame permits a system which operates with three functions. The first is a message system whereby users communicate asynchronously. Students may ask questions and some time later sign on to receive answers from their tutor. Tutors can send course updates to students. A second function allows for discussion on a specific topic among class members. The third permits access to and manipulation of data bases of course related material.

This use of computers enhances the ability of Distance Learning to be convenient for students, since they can enter and exit a conference.
according to their personal schedules, without missing any of it. However, effective use of the computer as a communication systems demands compatible computer purchase by all class members, software must be easy enough to use in order that students not be reluctant to use it, and the institution must allocate resources to computer time for conferences, and computer purchases for tutors must be possible.

Bates (1983, p. 16) advocates the use of conferencing in courses to "enable teachers and learners to remain in control of the teaching process."

To date, such use is in an experimental stage, but it can be seen to provide several avenues to meet student needs. Conferencing can be used to provide new personal and professional relationships, access to the instructor, course content discussions, and access to effective high quality learning materials.

iv) Summary

The instructional media found useful in meeting student needs at the Open University in its distance education programs are print, radio and audiotape, telephone and teleconferencing, television and videotape, and microcomputers connected to the university mainframe. The media provide opportunities for personal growth and development, and the time demands of media use necessitate a change in living patterns. These effect changes in the students' everyday lives which are indicated as desirable in the analysis of student motivation in Chapter II. Since the Open University's programs are well recognized as high quality education, enrolment in these courses meets student needs for recognition and status, an external motivating factor. The internal factor of a change of living patterns, and external factor of the need for new relationships are at least partly satisfied by student...
participation in the rigors of course study and in study centre and summer school activities.

**Case Study II Wayne State University Weekend College**

**General Description**

The Weekend College program at Wayne State University developed as a unique program for working adults. The Weekend College is part of the Wayne State College of Lifelong Learning which offers credit and non-credit courses, community education, summer programs as well as the Weekend College program (Annual Report, College of Lifelong Learning, 1985). The Weekend College Program began in 1973 and has graduated over 1300 working adults. Originally, the program appealed to many Vietnam Veterans who could take advantage of educational benefits if they were full time students, but who were not able or willing to leave full time jobs to go to school. According to Otto Feinstein, one of the founders of the program, the University recognized that many traditional young full time students engaged in many hours of paid work each week, plus athletic, service, and social activities; therefore, it was not impossible for highly motivated adults who were working full time to accomplish a degree in a similar time frame. To assist them, the Weekend College program would bring much of the program to the student, making it as convenient as possible for the student to have access to course materials. The 1985-86 College brochure describes the program as follows: "The Weekend College Program's curriculum is brought to the student by a variety of means designed to reduce travel time and seat time, allowing busy adults to complete their bachelor's degree in a reasonable amount of time." The delivery system includes once a week workshops many of which
take place in industrial plants, others at neighbourhood centres, television
courses broadcast on the PBS channel and on cable, and conference courses
held on three weekends each semester on campus. These conference courses
include a variety of features such as films, slides, guest speakers, and discussion
groups. The television courses include those made at Wayne State University,
telecourses from other producers in the U.S. and courses from the Open
University in Britain obtained through the International University Consortium.
Students obtain a degree in General Studies, and include in their program
credits in Arts, Science and Technology, Social Science, Urban Humanities,
Foundations of Knowledge, and a Senior Seminar or Essay.

The importance of the Weekend College Program as a model in higher
education is notable. A consortium of fifteen colleges and universities followed
the Weekend College model and adopted the Wayne State Program.

In 1984 this group, called the "To Educate the People" Consortium
offered the Wayne State and other courses, following the curriculum of the
Weekend College. The curriculum thematically integrates the television
course, workshop, and conference course which the student takes each year.
In this way, the program is significantly different from a typical undergraduate
smorgasbord of courses. The Weekend College notes that in support of its
curriculum credibility, 45% of alumni had applied to graduate programs and,
of these, over 80% had been admitted. (Annual Report, 1985). This success
rate is significantly higher than university averages, estimated to be 20%
who apply to continue after a first degree. (Fenster, 1983).

Programs Offered - Bachelor of General Studies

Mode - Dual mode institution. Weekend College
is one program of the College of Lifelong
Learning in an urban, multidisciplinary
university.
Enrolment 1509, 1984-85
6 areas of study, each with 3 components
(workshop, seminar, telecourse).

Instructional Media – Textbooks and printed materials
- Broadcast and Cable television (Note – the preparation of videocassettes of the programs to be borrowed by students is planned).
- occasional films, slides, tapes at seminars

Instructional Strategies
- written assignments and written criticism from instructors
- face to face tuition (at workshops held once weekly, and seminars held three times per semester).
- guidance from instructors at workshops
- integrated curriculum - discussions at workshops and at seminar courses include issues from television programs which are on a related topic.

Support Services
- instructor for workshop is also counsellor
- Weekend College Administrative Staff counsellors
- peer group support from those in same workplace or from same neighbourhood

Media Technology in the Weekend Studies Programs.

The TV course has proven highly effective in transmitting information, and in making available normally inaccessible resources. In general the TV course is used to provide the materials underlying the quarter's work. (Feinstein and Angelo, 1977).

The adoption of video in the form of broadcast television programs in the Weekend College took place in order to

1) distribute a significant quantity of content to complement the print information

2) to give students access to lectures in the early morning, late night,
or on the weekend without their having to spend time and energy travelling to a centre.

3) to pace students through the curriculum by introducing new content each week. (Feinstein, 1985). The television programs were chosen to facilitate delivery of part of the curriculum to students in their homes, to integrate this aspect of the program into their everyday life, so that education was part of their "home" life, as the workshops made it part of their work or neighbourhood life. (Feinstein and Angelo, 1977).
The programs were originally aired several times during the week on Detroit's PBS channel. However, over the 12 years since the introduction of the program, air time has become in much greater demand and there has been less time available for these courses. Cable distribution has been substituted, but not all would-be students have access to cable. For this reason, a lending library of videocassettes is planned, (Schindler, 1986). However, there are fears that students would not keep up with the programs if they felt they could get access to them at a later date. The motivational aspects of the regularly scheduled programs are considered important (Fiedler, 1986), as well as being the necessary background information for the weekly workshops. Because of the high cost of television production, Wayne State has been financially unable to update its original television courses. Some of the other "To Educate the People" Consortium schools have revised the courses, but the courses are generally not considered attractive as general interest television courses and therefore have difficulty finding air-time on regular PBS or other channels (T.E.P. conference, 1984). The teleseries from the International University Consortium (I.U.C.) are the BBC/Open University courses, adapted for the U.S., and are greeted more enthusiastically by PBS programmers and viewers. Although there are fewer I.U.C. programs per course than in the Wayne State produced courses, they are still considered important motivators, but for maintaining interest rather than for pacing. The I.U.C. courses (high quality B.B.C. productions) are seen to amplify the concepts in the print materials where the original T.E.P. courses are seen as basic content disseminators (Schindler, 1986).
ii) Other Media

(Occasional Films, Slides, etc.)

These are unable to be assessed since they are not regularly used in the courses, but are adopted by individual instructors as they consider appropriate in the seminar and workshop parts of the program.

iii) Summary

It is significant that an urban university uses primarily the one type of media in its distance programs. The video programs are distributed on broadcast, cable, and (soon) videocassette, but Wayne State has not found it necessary to institute other mediated contact because students can and do meet together with instructors at local and work centres for discussion and clarification. Video programs are used to provide subject content matter but the use of television programs in the Wayne State model also meets some of the motivational factors identified in Chapter 11. The programs provide for personal growth and development, and enrolment at this prestigious urban university satisfies student needs for recognition and status. The regularity of programs on broadcast or cable affect the students' living patterns in occupying a regular and significant amount of the students' time at home. Other aspects of the Weekend College program provide for the other student motivational needs of interaction with others (workshops and seminars) and changes in relationships (development of associations with others in the community and workplace out of class participation). The urban population has access to the program through its open admissions policy and the availability of seminars in the community while the television segments help to bring the learning resources to the students' community and homes.
Case Study III Athabasca University

General Description

The concept of a fourth Alberta University was created to meet an expected increased demand for undergraduate university places as estimated in the years 1966-1970. However, a change of provincial government and the failure of the expected demand to develop resulted in reconsideration of the original Athabasca University plan after 1971. Since another residential university was not required, Athabasca University turned its attention to other matters. According to Ross Paul, Athabasca planners and staff revealed "a strong interest in the non-traditional learner, in home study, in learning theories and their application to instructional design, in interdisciplinary curricula, and in educational technology" (in Mugridge and Kaufman, 1986 p.131). The university has a commitment to open admission, personalised learning, interdisciplinary studies and delivery systems which utilize new media technologies. The establishment of regional offices in Alberta and co-operative arrangements with other colleges have assisted in the delivery of what are called paced, enhanced delivery (PED) courses. These programs are popular with rural students who wish to include contact with other students and tutors in their learning programs. Seminars and teleconferencing are two methods used to enhance home study programs. Urban students who have physical access to other higher education programs choose courses from Athabasca if they prefer the autonomy and student control of the learning environment that Athabasca's strictly distance education courses provide. The distance courses which do not include seminars or television broadcasts can be started at the beginning of any month, thus ensuring flexibility
for the student, and have extendable completion dates to suit the pace of the learner.

The electronic media employed in Athabasca's courses include television programs (distributed via ACCESS, Alberta's educational network), video cassettes, radio, audio cassettes, audio teleconferencing, interactive radio and television, and microcomputer instructional programs. Students have access to telephone tutors who act as teachers, content experts, examiners and counsellors. Seminars or teleconferences are arranged in many courses, particularly in those appealing to the rural Alberta learner who wishes to develop contacts with other students.

Programs Offered:  
Bachelor of Arts  
Bachelor of Administration  
Bachelor of General Studies.

Mode:  
Single Mode institution providing distance education courses for urban and rural learners.

Enrolment:  
12,500 course enrolments (1984-85)  
(8000 students)

Instructional Media - Textbooks and printed materials.  
Broadcast television (ACCESS)  
Videocassettes  
Radio  
Audiocassettes  
Microcomputer assisted learning programs.

Instructional Strategies:  
written assignments and exams and written criticism from tutors  
integrated course materials  
orientation materials for "self-help".  
in-person seminars (in some courses).
Instructional Services:
- tutor telephone access
- teleconferencing discussions
- tutor counselling
- student services staff counselling.

**Media Technology at Athabasca University**

In the pilot project (1972-75) the University was to design its own courses in order to meet the educational philosophy of offering interdisciplinary courses to Athabasca students. (Shale in Rumble and Harry, 1982). Course teams were established to develop the courses using a variety of media. However, because the courses were costly and time-consuming to produce, the University began to combine materials already in existence to comprise a course rather than write and/or produce its own. Athabasca also began to acquire the rights to courses produced elsewhere, adapting them for use, and to co-operate with other institutions on the development of courses.

i) Audio

Audio materials are distributed on cassette, and on FM and sideband radio on an ACCESS station. Radio programs have also been distributed by narrow casting through a Subsidiary Communications Multiplex Operation (SCMO) facility from ACCESS.

Audiocassette material is mainly lecture material or explanatory support for other course materials. Whether purchased from other institutions or university produced, audio cassettes have been convenient and inexpensive to distribute. The use of audiocassettes is the one media technology routinely used in those Athabasca distance courses which are essentially home study courses. Audiocassettes complement the packages of texts, study guides, and reference materials to complete the self-contained instructional programs.
Some audio material reaches students on radio, which provides the same quality but is less convenient than cassettes for students due to the necessity to be available to listen at scheduled air times.

Radio programs within the province have been available to students, but do not give them the same autonomy and control over time, pacing and review as do cassettes. Radio broadcasts in most courses are not integral components of the course content, but are recommended as enriching material (Owen, 1986.) In 1984-85 Athabasca offered 85 hours of radio programs in 4 courses, a very small proportion of the available audio materials. These radio programs, taped on audiocassettes, can be borrowed by students who cannot receive the broadcasts.

To suggest the success of the use of audiotapes in distance education, James Leslie in Distance Education in Canada (1986) theorizes that audiotapes replace the role of the regular classroom lecture which normally links the formal visual channel of textbooks, etc. to the informal visual channel of in-class overheads or blackboard information. The tapes allow professors to link textual to other course materials similar to their role in the classroom. In speaking on tape to the students, the professors could be informal in that they are addressing each student individually. According to Leslie, students find the use of cassettes in courses makes them "more personal" and eliminates "some of the remoteness from distance education". (p.240). These audio materials, besides assisting in content explanation, are convenient for students to use, and do offer a form of personal contact not evident in the impersonal presentation of print materials or broadcast programs.

Athabasca University assigns each student to a tutor in the student's
subject area. The tutor’s contact with the student is by telephone for course content clarification and study skills and evaluation consultation. The tutor is obligated to contact the student during the first two weeks of the course and, with the student, to lay out an informal study plan. According to Michael Owen, Assistant Vice-President, Learning Services, this involves the student right away in the course and paces the student through the material. According to Dr. Owen, this contact and planning at the beginning of the course improves the students' chances of completing their course. In some courses, several oral quizzes are given by the tutors who are subject content experts. The tutors also mark assignments but final exams are assessed by the course co-ordinator. In order to keep course co-ordinators knowledgeable with the courses and student concerns, each co-ordinator is required to be a tutor for at least one course per year. Each tutor is assigned 30-35 students per semester and establishes regular evening hours for consultation (Usually one or two evenings per week).

A limited number of courses each semester is offered using teleconferencing. The courses to be given using audioteleconferencing are established each year through surveys of students at Athabasca's Regional offices. An average of 20 to 30 persons participate in each teleconference, which can involve up to 20 sites. (There are twenty ports on the Athabasca teleconference bridge). Usually 2 or 3 students are at each site. Generally, weekly teleconferences are scheduled for each course. Teleconferences are used to discuss course content but also provide motivation for the students to satisfy their need for interpersonal contact, and their desire to develop new relationships. The disadvantage of teleconference courses at Athabasca
is that they take the pacing and control away from the students, making some courses inaccessible for the learner who cannot participate (Paul, 1986). Senior courses (which would be "readings" courses at traditional universities) are offered by Athabasca with instructor/student content by telephone. At this level, students are motivated by the subject matter to a greater extent than in lower level courses: most discussion is closely tied to specific student questions or instructor suggestions. (Owen, 1986).

ii) Video

During the years 1972 to 1976, the use of broadcast television was the preferred media technology for delivering course content at Athabasca. (Paul, 1986). However, the development, production and delivery of these programs was considered too expensive to be practical as the primary method of delivering a significant amount of learning material. Athabasca University now co-operates with ACCESS, Alberta's Educational Television network in the acquisition and development of programs which can be incorporated into the University courses. The ACCESS satellite network reaches almost all of the province with these supporting programs. In fact, Athabasca produced only one full course with television segments. The university since has purchased or co-produced any video segments used in courses. Co-production has been found to have the advantage of avoiding faculty distrust of programs completely produced elsewhere. (Shale, 1982).

Videocassettes of programs for courses are distributed to the Regional Learning Centres where students may view them. These are made available even if the programs are televised on ACCESS because of scheduling problems,
and unreliable reception in some areas. At the Learning Centres the students have the ability to stop and/or review the programs at will, but it can be an inconvenience for students to set aside time to go to the Learning Centre to view the programs. In 1984-85 Athabasca offered 74 television hours in 6 courses. The limited use of television in Athabasca courses appears to relate to the cost and time needed for production and distribution. Where used, video segments on television or on cassette are considered to be valuable additions of content to learning packages, but secondary to the print materials (Shale, 1982).


Summary

Athabasca University has done extensive research in tutor assessments, and has recently established a Centre for Distance Education Research (1986) to study student learning styles, instructional strategies and student retention and drop out rates. Media use and student services support will be critically viewed to determine their effects on student completion rates and satisfaction. Since Athabasca is a recently established institution, it has based its instructional design and strategies on what has been successful at other distance institutions. Since 1980, the institution has supported instructional and disciplinary research, but the increasing student demand for Athabasca courses has had a detrimental effect on the faculty time available for research. The

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REDEAL reports and individual faculty assessments indicate that learner motivation is affected by tutor provided feedback and interpersonal support (Coldeway, REDEAL Report #2, p.17). This finding would support the use of telephone contact and teleconferencing in Athabasca's programs, instructional design components which serve to provide interaction, recognition, and opportunities for new relationships, all components of learner motivation as identified in Chapter II. The use of audio and videocassettes, radio and television programs provide course content information and assist the students' intellectual development as well as providing access to learning resources in the students' homes and communities, aspects of courses which are important to distance students according to the Chapter II findings.

**Case Study Comparisons**

From the three case studies, it is evident that various media provide different types of support for educational programs. If the use of one type of media materials serves mainly to add course content, this suffices to give students opportunities for personal growth through knowledge and access to learning resources but other media or instructional strategies should also be included to meet student needs for interaction, changes in living patterns and their desire to develop new relationships.

**Open University**

At the Open University, an effective distance education program has been available which serves both to provide content clarification and to meet student needs. The production and distribution of high quality audio and video materials are supplemented with tutor and learning centre support and summer
school campus programs.

Materials are produced using a production team of instructional designers, content experts and producers to assure effective instructional programs for the desired learning objectives. Because programs are developed in conjunction with the print materials, the complete course package is coherent and productions are an integral part of the course material.

The attention to production quality in the audio and visual materials assures that it is accessible on broadcast to students, since the programs must meet the criteria for general distribution programs. It is significant that the BBC (British Broadcasting Corporation) is involved in Open University productions. (The Open University campus contains BBC/OU joint studios). The relatively small size of Britain, its efficient post service and available television and radio signals allow communication from the institution to reach distance students. The Open University hired its professional and academic staff to include those with the interest and skills to produce effective learning materials. Accessibility has been assured by the use of readily available technology (e.g. telephone, audiocassettes), and by the extra attention paid to the quality of in-house productions of complex materials (video or television programs) in order to assure that they meet the criteria for general broadcasting.

The Open University has been careful to include faculty content experts in every phase of materials production in order to make these acceptable to the faculty. The use of a production team can be a slow, laborious process of learning and compromise but the result is a program faculty are willing to support and use. The O.U. attention to instructional objectives, and quality
of materials makes these acceptable to students who are able to enjoy clear, accurate, interesting and appropriate programs.

The cost of O.U. programs and materials are among the highest in the world in distance education. However, the enrolment at the institution permits economies of scale in printing and justifies to some extent the cost of production. In addition, the Open University courses and programs are sold around the world, earning some income to support the facility. The Open University was established also as a social program to help break down class barriers and inequality of opportunity. The large numbers of interested and its continued governmental support, even if some costs are high.

Wayne State University Weekend College

Wayne State University has depended on its media materials for content information, simply produced. The University has provided motivational support through frequent, well developed interaction opportunities.

The television programs are taped lectures augmented with readily available or produced graphics or pictures. The effectiveness of the programs depends on the content being closely tied to the print materials and seminar discussion and the integration of all the materials for each term's theme. The explanations and demonstrations are thus to be viewed in the context of all the materials and discussions of the term's work.

Access for the institution is facilitated by the expertise available in an already existing multifaceted university in a large urban environment. The university had the media facilities and expertise to develop distance programs. Similarly, the students in an urban environment had access to the technology and distribution systems which carried the programs, and
were able to meet for the local discussion groups.

Although the produced video programs were technically unsophisticated, the print materials were professional quality, assisting in their acceptability to faculty and students. Also, the professors of particular courses were often the writers and/or talent (on-air person) on the programs, thus assuring the faculty would have a vested interest in the acceptability of the programs. Wayne State is a prestigious institution in its geographic area. Students enrolled thus felt the status of membership in the university despite the simple techniques of the video productions.

Broadcast quality video content is expensive to produce. Lower quality programs can be made but it may be difficult to find a distributor willing to give them air time. This is precisely the problem Wayne State University has encountered. It has experienced an increasing difficulty in obtaining desirable scheduling times on the Public Broadcasting channel because the programs are not of broadcast quality. Cable channels have agreed to schedule the programs, but many potential students do not yet have access to cable in the Detroit area. As recently as the fall of 1986, some of the cable distributors have refused to carry university courses because they feel other programs have more general appeal. The programs produced at Wayne State University have been used by over a dozen colleges, but these were almost given away. Not much income could have been derived from such simple productions. Also, those in charge felt a mission to assist the development of similar Weekend College programs elsewhere. In retrospect, it would have been advantageous to have gained enough return on the programs to be able to update them. The dated content has been a problem for faculty,
students, and the administration. Costs for production have been a significant factor in the decline of the program and dissatisfaction with the Weekend College program in the administration. In the College's recent rejuvenation, there is a commitment to programs less dependent on expensive video production and an encouragement of the purchase of programs rather than production.

**Athabasca University**

Athabasca University has accomplished much in a short time. It has managed to make available a large variety of courses in a short time to a dramatically increasing student body. It has adhered to its ideal of permitting the maximum in student autonomy by allowing for student enrolment in its strictly home study courses at the beginning of any month. Since tutor support is individual in these courses, tutors may have students at different stages in the course. Completion dates for the courses are also flexible and extendable.

Because student autonomy is important, scheduled media materials are for enrichment only. Those prescribed in the course are individually available (e.g.on cassette). The effectiveness of the materials is closely tied to their integration with the text and other print materials. They are also effective, because they are "user-friendly," for example a professor on tape speaks informally as if to one student only. Production teams include instructional designers whose task it is to be sure the materials meet the established learning objectives for the lesson.

As at the Open University, Athabasca's staff include those who understand the content and process of production and faculty are encouraged to further
their knowledge of instructional effectiveness in research. Athabasca has been able to co-produce with ACCESS, thus assuring professional quality and a distribution system for these productions. Accessibility for students is possible by a lending library of all media materials so that those who cannot receive these in their homes can gain access to them.

Acceptability of some materials has been problematic at Athabasca because greatly increasing demands for courses have necessitated the purchase or leasing of courses from other institutions. Faculty, students, and tutors have been frustrated by Athabasca's inability to do much of its own production to make the courses locally (i.e. Alberta) relevant.

This lack of production is due also to the cost of producing quality materials. Not only has it been quicker but also it has been cheaper for the university to obtain programs from others than to rely on home production. The developments at Athabasca corresponded in the late 1970's to a severe economic downturn in the province, substantially reducing Athabasca's desired increase in funding.

**Summary**

The research shows that in all three of the case studies, by design or development, a balance has been sought between the provision of content materials permitting the student to learn alone in his or her home, work, or leisure environment and the availability of support to motivate and meet student needs as well as provide informational content.

Some media uses provide mainly content (Open University radio lectures); others personal support (Athabasca telephone tutorials). There are media technologies which provide both (e.g. audio teleconferences at the Open
Teleconferencing in these cases is effective in clarifying content, and it is generally accessible to faculty on campus and accessible fairly easily by students in local meeting places. The use of teleconferencing technology resembles that of the telephone; thus it is familiar and acceptable to faculty and students, and it is relatively inexpensive for both the students and the institution.

**Instructional strategies used in distance education must provide both content information and student support.** Media technologies can be employed for either or both purposes and can be judged according to effectiveness, accessibility, acceptability and cost factors. New media technologies can be used to distribute content, provide clarification, make available opportunities for interaction, offer support services but all these must be present in any program in order to meet student motivational and support needs. The technologies are interdependent in an effective distance education program, with the most powerful program being one which provides content, and also is interactive.

The research in these case studies indicating the applicability of media to meet student needs in three distance education programs provides answers to the second research question: In what ways can the new media technologies assist in the provision of University courses for students who are unable or unwilling to enrol in regular campus classes? The cases indicate the contribution of media technologies to assist distance students in their university courses.

The analysis in the case studies of the attributes of media selection and combinations of media will guide the recommendations for the selection of media in another case, that of the University of Windsor distance programs.
CHAPTER V

UNIVERSITY OF WINDSOR ACCESS TO MEDIA TECHNOLOGY

Introduction

The University of Windsor has access to some new media technologies which the institution can employ to assist in providing educational programs to those who are not able to attend regularly scheduled classes. Some media resources could be used mainly to provide course content, others could be employed to help motivate students and some may fill both functions. The university can provide opportunities for learning using non-classroom options which may or may not include media based distribution or content. The purpose of this study is to assess those media based materials which can help to meet distance student needs. An assessment of the University of Windsor media environment including access to distribution and production expertise will answer the third research question: By what means can the University of Windsor provide educational programs using the new technologies to students who are motivated to take courses but would find it difficult to attend regular classes?

The programs at both the Open University and at Athabasca University are offered for students who may be geographically some distance from the institution. The programs at Wayne State University's Weekend College are intended for those who do have in-person access to the weekly seminars and can attend occasional weekend workshops locally. The technologies which will be useful for the University of Windsor depend on the geographic area the university will serve. Some new technologies permit distribution over great distances very easily while the use of others is geographically sensitive.
and applicable only to particular areas. These restrictions will be discussed for the particular case of the media technologies available to the University of Windsor.

Audio

Audio material is effective in transmitting information, providing expert commentary, suggesting alternative theories, and encouraging student progress. Various learning objectives can be met incorporating audio material into the course. Both Athabasca and the Open University have found the use of instructor based audio material on radio or cassette to be helpful to their students, and easily produced by instructors. The University of Windsor would have difficulty distributing audio material on local radio since frequencies in the immediate area are not set aside for this purpose, and radio air time would be prohibitively expensive to purchase. Distribution of audio material on cassette is more feasible and need not be geographically restricted, but does require a limited amount of production time. Costs of duplicating and mailing for each student are relatively inexpensive. Audiocassettes allow students to study and listen at their own convenience, and to repeat difficult sections of the material, but they allow just a one-way presentation. Audiocassettes have a proven record of value in education, not just in the cases studied but also by the University of Waterloo most of whose correspondence courses are supported by audiocassette "lectures". Duplication of this correspondence/cassette format for a complete program by another Ontario university may not be advisable, however, since Waterloo's courses are already recognized and available across Canada to students who choose this method of study. The University of Windsor has the technical capability
to produce audio tapes, and it is likely that courses using other media may be enhanced by the addition of some cassette materials to explain difficult concepts or encourage students in their studies.

The use of the telephone for student-tutor contact or audioconferencing (a tutor and students at several locations) permits two-way information exchange and discussions, can facilitate problem solving and, because it is interactive, can reinforce other categories of learning. Telephone contact and teleconferencing also assists motivation by providing feedback and encouragement from the instructor. Discussions by teleconference, which include several class members, meet the needs of students for interaction, the establishing of new relationships, immediate recognition and feedback for learning and access to content experts. Since the technology is simple to use and familiar (telephones and microphones), students and instructors are comfortable with it and do not have difficulty using it. For audio teleconferencing, time can be rented on a teleconferencing bridge, or the equipment can be purchased outright. Several universities including Athabasca have purchased bridges for this use, and for other purposes such as inter-institutional faculty discussions and rental to industry for business meetings. Bridge rental or purchase is not an unusually large expenditure for such institutions. Telephone contact exists between instructors and students in currently available distance courses at the University of Windsor and the University's telephone system is able to link on-campus with two off-campus students or sites simultaneously, permitting limited teleconferencing without a bridge. Teleconferencing use would permit exchanges of ideas, feedback, access to experts and counsellors, and opportunities for interaction with other
students and instructors, all motivational needs as identified in Chapter II. Audioteleconferencing is not a panacea for all distance learning needs, however. The scheduling of teleconferencing does restrict the student's autonomy by fixing a schedule to the course. In addition, some concepts are difficult to discuss without visual cues and demonstrations.

**Video**

Slides, slide/tape programs and 16 mm films have not been used extensively in Distance Education programs except at occasional class meetings because of the difficulties of distribution to individual students and individual access to equipment, although these media have a long history of effective use in the classroom setting. Limited access to projectors and the bulk of the materials makes them problematic for student use. Films are expensive to produce, print and distribute as well, although they are not necessarily expensive to rent or buy. Transferring a program from film to videocassette enhances its use for individualised learning situations, since videocassette players are more common in homes and libraries, and are more reliable and easier to use.

**Television**

In the cases studied, television programs were found to be helpful in adding to and presenting course content. At the Open University, television programs also served the purpose of motivating students by stimulating their interest, giving students access to experts, and pacing them through the materials as well as being a marketing and promotional device to enhance the status of the new university. At Wayne State, prestige was reflected from the status of the university in the community generally; the programs
served to add content and pace the students, and the frequency of the programs re-organized the students' pattern of home activities (Feinstein and Angelo, 1977). At Athabasca, programs produced jointly with ACCESS lend the prestige of well-produced, interesting, and up-to-date programming to the university's courses. (Shobe, 1986). Athabasca has produced just one course series alone; it has found that it has neither the time, resources nor funding to produce alone its own video materials for distance courses. (Owen, 1986). Much of the televised material used by Athabasca is for course enrichment. The required content is in other materials (mainly print). Pacing is determined by the order of teleconferences in courses using these or is according to the student's scheduling in consultation with a tutor in other courses, but is not controlled by television programs. The particular choice of television materials by the University of Windsor can serve to restructure a significant part of the students' time if there are regular, frequent, content intensive programs pacing the student through the course. Alternatively, well produced broadcast programs may lend an air of prestige to the courses, encouraging students with the status of participating in a high quality mediated learning environment.

All three of the cases studied use video programs distributed on broadcast, cable and/or cassette. The content for these media can be identical. It is the distribution means which vary. However, for broadcast or cable distribution, programs should be of high quality to justify occupation of air time. BBC produced Open University programs and ACCESS produced Athabasca programs meet this standard. Because the Wayne State video programs are of inferior quality, they have been pushed into less and less popular air times and have fewer hours allotted for broadcast each year on
the local P.B.S. channel.

Accessibility can also be achieved on cable channels with varying success depending on the attitude of the cable companies and prevailing cable regulations.

At present, the University of Windsor can employ in its distance courses video programs distributed in several ways. In co-operation with other Ontario Universities and Colleges, the university can suggest the acquisition and broadcast of television programs on the province wide TVOntario network. These programs are shown on UHF and VHF channels throughout the province. Cable distributors in Ontario carry the TVO programming as a priority service to all cable subscribers. When programs are purchased or produced by TVOntario for use in post-secondary distance programs, TVO generally secures the rights for educational use for all of the province. These rights permit the University to provide local cable companies with copies of the programs in order for them to repeat the broadcasts on the community cable channel as a subscriber service. Some cable companies are eager to provide this quality programming to support their commitment to community involvement; (e.g. Windsor cable) others choose to refuse to allow universities this access unless paid for a technician's time for the showing of each program. (e.g. Maclean Hunter Cable in Sarnia.)

The TVOntario rights also permit the university to provide copies of the programs in libraries for student use, thus permitting individual access for viewing at times other than broadcast hours, and for review.

Because Windsor borders the United States, it has access to the television programs of the U.S. Public Broadcasting Service. The Detroit P.B.S. station
has broadcast the Wayne State University Weekend College telecourses and courses for a consortium of Michigan Universities and Colleges. These programs can be viewed in the Windsor area, and it was through the expertise and encouragement of the Detroit colleges, Wayne State, and the PBS station that the University of Windsor began its distance education program, using the telecourses purchased by the consortium and aired on Channel 56, WTVS.

Michigan colleges have rebroadcasts of the Channel 56 programs on a cable channel designated for educational use, but there is presently some reluctance by the cable companies in some suburbs to carry this channel because of its limited appeal. It is technically possible for Windsor and area cable companies to receive this "College Cable Channel" for cablecasting, but the jurisdictional regulations of cross-border cable services are presently under review in both Canada and the United States. The issues of Canadian content and copyright as well as the increasing demands by cable to carry more profitable programming would require clarification before Canadian students could have access to the College Cable Channel. The deregulation atmosphere of the current U.S. administration may make it difficult for educational institutions in Detroit to maintain the present cable access. Cable companies favour more profitable cable services, according to the present chairman of the consortium (Fiedler, 1986).

**Canadian Satellite Communications Inc. (Cancom) Service**

Some of the University of Windsor distance courses have used teleseries broadcast on Channel 56. This channel is the PBS station distributed on satellite by Cancom to cable companies in many northern Canadian communities and in many urban areas as well (such as Dartmouth, N.S. and the cities of Saskatchewan). Cancom has chosen to distribute all the U.S.
network stations from Detroit because of technical feasibility, to satisfy
the C.R.T.C. It would not divert Canadian advertisers from local stations
(because of the high cost of Detroit rates) and because of time zone
considerations. The satellite distributed Channel 56 programs including some
of the telecourses used by the University of Windsor are seen across Canada.
There has been some interest shown by Canadians in distant communities
to enrol in these telecourses. In order to enrol these students, the University
would first have to determine how to meet the motivational needs of these
students as identified in Chapter II. The need for access to resources (e.g.
library) and the need for interaction with other students and tutors would
require attention. Media technologies (telephone, teleconferencing,
audiocassettes as well as the video programs) could be employed to provide
means of meeting student needs. Employment of local tutors or counsellors
who had completed university studies would echo the solution found by
Athabasca University to meet students' needs in distance courses. The
University of Windsor, being the closest Canadian University to WTVS Detroit
might develop a plan to encourage the formation of a network of co-operating
Canadian Universities, many of which would be in or closer than Windsor
to the areas receiving WTVS programs. The University of Windsor could
represent this network on the Michigan consortium regarding course selection,
scheduling and promotion. It would be possible with generous transferability
agreements that not all universities would offer all courses. Depending on
the popularity of courses, university preferences, and the logistic practicalities
of courses, students could be served by more than one institution for different
courses and if there are local tutors or teleconference centre co-ordinators,
they may be employed by more than one university. With network or consortium agreements, the autonomy of each university could be preserved, traditional territorial areas could be maintained in desired subject areas, but students would have more choices by having access to a wider variety of courses and methods of instruction from several institutions.

According to the Canadian representative of Channel 56, Mr. W. Nemtin, (1985) the twenty four audio channels on each transponder of the Cancom service on Anik D1 (which carries the WTVS programs) are not in great demand. Cancom is a private company and could rent this radio time. It would be costly but it may be possible for an institution or for educational providers to request collectively that a number of audio channels be set aside for educational programming. The precedent for this demand is in the present program requirements for cable services where some services (such as C.B.C. and provincial education channels) are required services and additional channels are optional, both for the cable company to offer and subscribers to purchase. If audio channels were available, these could be used for distribution of lecture or discussion materials on F.M. (the band now carried on cable). The advantage of offering these radio programs would be to reduce the copying and mailing of cassettes; however, this would also reduce student autonomy in requiring their attention at specific times for listening or recording for later use.

The availability of the Cancom service in the north which broadcasts the video programs used for distance education in the Windsor area permits the University access to a new group of potential students from across Canada. It is evident from this study, however, that means of meeting student needs beyond course content information would have to be employed to operate
a program that would motivate students in their studies.

**Videocassettes**

Videocassette recorders in the home in Canada are now commonplace. Any teleseries can be recorded on cassette and mailed to each student in the class. However, videocassettes, unlike audiocassettes, must be recorded in real time and resources therefore needed to copy a series for each class member is excessive. The mailing costs of videocassettes would also be significant if sent to each class member. The Open University (Bates, 1984 p.38) predicts the use of videocassettes will increase, but since recorders can be programmed ahead to copy, the university sees broadcast or cable as the only practical way to distribute the programs for individual student recording playback. Until such time as copying video can be done at a fast speed, and the format becomes smaller, the distribution of individual cassettes to students is costly.

**Developing Technologies**

Teletext uses the vertical blanking interval to make available 150-200 broadcast pages of information. If broadcast on a full channel, much more text could be available to the viewer.

Videotex is a two-way service, using the broadcast teletext operated by a home computer to provide interactivity. The future of this technology is forseen to include consumer ordering applications.

Although neither teletext nor videotex have found an extensive market to date, the downloading of information into home computers via cable would permit the receiver access to such services as classified ads, transactional services, and electronic mail. Such services, known as informatics may become
important cable services before the end of the century. Such services can use the telephone line instead of cable, but the advantage of using cable is that the subscriber's telephone is left available for other services.

Developments in programming for these technologies holds exciting possibilities for distance education. Distribution of course content information and interactivity between students and their instructor or course materials will be possible over the cable system.

Distance education students are restricted from attending regular classes often by time constraints, even where distance to an institution is not a problem. When students are required to attend class meetings, teleconferences, or watch or listen to specific problems, their autonomy in the courses compromised by the necessity to be available at certain times, purchase specific equipment, or remember to set a recorder to tape a specific program.

In the future, instead of a branching cable system that takes every program to each subscriber, a central switching system (like the telephone system) would allow the subscriber to dial up particular programs. The use of fibre optic cable and translation of all audio, video and graphic information into a digital format would permit the application of this system for common use. The technology would permit user choice of time and greater selection (as has the videocassette recorder), but would expand greatly the programming available in the home, and free viewers from the dictates of program scheduling, since programs could be called up from the central memory on the switched network at the student's convenience.

The technology of this system, when available, would solve one of the primary practical problems of students and the institution - that of making
sure all students have access to the programs at home, even if they are not available to view them at certain times, and freeing the institution from having to provide libraries of taped programs for student use.

All the new technologies open up possibilities for commercial exploitation. It is to be hoped that educational institutions and policy making organizations will assure that these opportunities are available to provide services (such as educational programs) to the public as well as serving the needs of commerce and advertisers.

Production of Video Material

Content for video programs can be purchased, rented or produced. The cost of production far exceeds the cost of purchase or rental. Writers, producers, content experts, talent, and technicians all draw salaries in production. Studio and remote taping involves expensive technical equipment. The University of Windsor has equipment, the technical expertise and content experts, but in order to produce video programs it would have to apply resources to the project and/or produce as part of a consortium. Consortium production is the standard procedure for many universities in North America and for educational programers such as PBS, TVO and ACCESS. Institutions and faculty involved in production will be committed to using the produced materials, thus assuring their use (and cost sharing) by more than one institution. The University could acquire technological prestige in being a major partner in quality productions and their distribution as has the Open University. Content and production expertise and a ready clientele for programs are available to the University of Windsor. Cost is a major factor to be assessed in undertaking video production, along with the recognition that video does not meet all student needs in a course.
**Videoteleconferencing**

Videoteleconferencing has all the advantages of audioteleconferencing plus the ability to add immediate camera information. Videoteleconferencing can also provide interaction closest to an in-person environment. Full Videoteleconferencing requires expensive equipment and satellite or microwave distribution, making it prohibitively expensive for general educational applications at present. However, limited video contact can be made using telephone lines. For display and limited movement applications, this new technical ability of transmitting slowscan, freeze-frame and compressed video would help in the provision of distance education by providing both audio and visual feedback and recognition, by lending opportunities for interaction, and by permitting access to content experts. Technical equipment for videoconferencing has been developed recently. Costs are reasonable except for full motion, due mainly to the lower cost of telephone transmission.

The University of Windsor has a number of choices in using video materials to meet student needs. Various distribution methods are available which can meet the needs of local or distant students. Useful choices depend on the needs of the students to be reached, available expertise, and appropriateness and cost of materials.

**Computers**

Both the Open University and Athabasca use computers in their Distance Education programs. Both are still at the experimental level in the use of this technology. The Open University in 1986 is attempting a limited program of discussions among class members at whatever time(s) the student wishes to connect over a limited time period (usually a week on a topic), using a
microcomputer. (Bates, 1986). Computer Assisted Learning (CAL) programs have been used for four years in remedial programs and for revision assistance, using terminals at the study centres. These have met with limited success due to machine breakdown, and the problems of student access to the centres and queuing delays at the terminals (ibid.)

At Athabasca, the use of computers in course delivery is so recent as to have no reportable results as yet, but this technology is seen to have great promise for the future (Kaufman, 1986) in content distribution, interactive learning, and messaging and conferencing.

At the University of Windsor, distance education programs could employ computers in several ways:

1) Dumb terminals at study centres connected to a main computer using a modem and telephone line for content distribution, messaging and interactive learning programs.

2) Microcomputers at study centres with course content software on disc or adaptation to make the micro "look" like a dumb terminal for connection to the main frame, for uses as above.

3) Microcomputer used to provide visual support (graphics) for audioteleconferencing using telephone connection to terminals at receiving sites.

One of the main challenges with any computer use is the necessity for instructors and students to become familiar with the computer system in order to use it effectively and efficiently in teleconferencing. A level of proficiency in use of the equipment must be attained before computers are effective instructional aids. Methods of familiarizing instructors with the technology require some time investment. For students, computer literacy of the current adult generation must be addressed before the computer will
be an aid rather than a barrier to education access. One possible solution for a program which includes computer material is to offer a first course for credit which will teach the student the basic skills needed to employ the computer in subsequent courses (to receive and manipulate data, for messaging, for word processing, etc.).

Summary

The University of Windsor has access to various new technologies which can help to provide educational programs to students who are motivated to take courses but would not be able to attend regular classes. The use of these technologies can help to meet the motivational needs of students.

The ability of the University to provide mediated course materials to students depends on the technology available at the University and its sources for or ability to produce media materials. The existence of distribution means to link the institution with the students also indicates which media technologies are useful in distance education. The options available to the University of Windsor to provide educational programs to students using the new technologies will vary according to the student's accessibility to the institution. Those close to the campus who can maintain some physical contact with both the professor and other students can be serviced differently from those who can reach only a sub-campus or study centre. Those who cannot reach the campus or study centre but wish to study independently or with minimal contact will require educational programs which are organized to meet their motivational needs in other ways. This study indicates the media environment of the University and the available distribution means which could be used to enhance educational programs for students who do not attend regular classes,
in answer to research question #3. It is apparent that the University of Windsor is not disadvantaged in terms of its access to a variety of media which could be employed in distance education. The university's media environment makes it capable of emulating features of distance education in other institutions.

The selection of new media to be employed along with print involves a careful review of the location of students to be enrolled, their needs, and the effectiveness, accessibility, acceptability and cost both for the institution, the instructors, and the students of various media and combinations of the new media.
CHAPTER VI
APPLICATION OF MEDIA BY THE UNIVERSITY OF WINDSOR

Conclusions:

Dan Coldeway, a researcher at Athabasca University states

Results over the last six years on distance education clearly reflect a bias towards nonempirical decision making on the part of most institutions and programmes. It appears that the lack of empirical data only serves to encourage that trend to continue. Nobody appears willing or able to do the research to answer even basic questions about learner characteristics and success. (in Mugridge and Kaufman, 1986, p. 88).

The primary goals of this study were to extend the knowledge of the characteristics of University of Windsor distance students and to suggest strategies using media to motivate them to success in their studies.

From the search of the literature of Distance Education, it is evident that meeting student needs is the concern of distance educators in universities in North America, Britain, Europe and Australia. Dan Coldeway (ibid, p.90) has found that "motivation and behaviour of students have more influence on their success than any personal or demographic factors."

In the second chapter, a comparative analysis was made of a 1985 study of motivational needs of Windsor distance students and the needs of all part-time students as determined in a previous (1984) study. In summary, Windsor distance students enrolled in courses to meet internal and external needs as follows:

a) for opportunities for intellectual growth and recognition of achievement;

b) to provide new patterns of interaction with personal and professional associates, and provide a change of living patterns;
c) to gain access to high quality instructional materials, instructional experts and resources, tutors and counsellors.

These findings answer the first research question of this study concerning the motivational needs of University of Windsor distance students.

The second research question addressed the capabilities of the newer media technologies to assist in the provision of university distance courses. Chapter III of the study outlined the characteristics of the various media used in this context categorized as audio, visual, or computer technologies.

To complete the research for an answer to the second research question Chapter IV analyzed three particular cases of distance learning programs in a search for patterns of media use in distance education which meet the motivational needs of adult students in other jurisdictions.

Some media were found to be useful to provide interaction (audioconferencing) while others gave students access to quality content materials and required a change in living patterns (broadcast or cable television programs). Some media served more than one purpose (audiocassettes could provide feedback and give students access to experts). The skills employed in the development of these materials also are reflected in their effectiveness in motivating students.

The case studies demonstrated that various media technologies have assisted in the provision of university courses for distance students. Audiocassettes, radio programs, broadcast and cable television, videocassettes, telephone tutoring, audio teleconferencing and computers have all been considered useful in the distance university programs in the study. The detailed assessment shows that what can be recommended in instructional media, as Schramm (1977) has indicated, is dependent not on what media
are being used, but on how they are combined and used in the total learning environment. Different media and strategies may meet different student needs, and can be more or less effective depending on how they are combined in a program. Media based instructional programs and instructional strategies for distance students should be designed to meet a variety of student needs.

Media technologies have been employed in the three case studies to provide educational opportunities for distance students. While educational programs requiring extensive laboratory work or professional programs involving supervised practice or experience are not feasible to offer in a distance education mode, all three cases provided extensive programs in Arts, Social Sciences, some Natural Sciences and Business. Media technologies have been employed for the provision of course content and for contact between instructors and students and among students themselves.

The use of several media in a program also permits faculty to have some control of the learning environment. Faculty will be able to choose the media technologies they believe to be appropriate for the learning objectives, and those with which they are familiar.

Many graduates from the United Kingdom Open University and from the Weekend College program at Wayne State University have been successful in further studies at the graduate level. Their preparation in the distance education mode has been sufficient for them to continue to the next level of study, indicating that the quality of their undergraduate program was acceptable to graduate schools.

From a position of knowledge of the effectiveness of various media technologies in other distance education cases, it is possible to suggest the
media to meet the needs of students in another case, that of the University of Windsor.

Each institution studied has access to particular media technologies based on the historical, technical, and geographic realities of its environment. In an assessment of the media which might be employed by the University of Windsor, the current availability and possible developments in media technology access were evaluated in Chapter V.

While this study did not attempt a definitive inventory of media resources at the University of Windsor, the following capabilities are known to exist.

The University of Windsor has some expertise and capability in audio production. Audio distribution locally would be through study centres or tapes mailed to students. For more distant students audio materials could be distributed by mail. Also, it may be possible to arrange satellite distribution of audio material to distant locations. The University has a film and video production capability but a shortage of money and personnel time for this intensive activity. Locally, video material can be distributed on broadcast, on cable and in study centres. More distant from the campus, video programs can be distributed by satellite and by cable. Videotapes can be mailed as well, but duplication and mailing of multiple copies for students is time consuming and costly. Computer capability in programming is restricted by a lack of existing software and by the necessity of the application of a great deal of time to design programs. Distribution is hampered, not by technical problems since telephone lines or floppy discs are used, but many students' lack of access to compatible computers.
Discussions between instructors and students can be readily accomplished using teleconferencing. Enhancing this technology to include video material on a monitor or graphic detail using a computer demands more expensive equipment and instructor training in effective use. It is evident that several media technologies are accessible and available at reasonable cost. More expensive productions can be undertaken with a consortium of developers. (Media equipment is useful also in other university and commercial applications.)

There are many non-classroom options which may be employed to meet student motivational needs. Chapter V suggested the use of media in distance learning programs for students with access to the campus or a sub-campus learning centre, and for those who could not make such contacts. As technology becomes more pervasive and domesticated (i.e. available in the student's home) increasing numbers of students will be able to have equal access to the learning materials. However, the findings of this study indicate that it will be necessary to choose media which meet students' motivational needs in order to provide an acceptable distance education program.

The study focused on methods of supplying effective distance education programs to students. Firstly, the progress chart (Fig.IV) indicates the research led to a detailed analysis of the motivation of distance students. Next, the study categorized media technologies as audio, visual or computer-based and identified the general characteristics of the media in these categories. An analysis of the three case studies followed including an outline of the media employed, instructional strategies and the ability of the elements of the programs to motivate students.
FIGURE IV PROGRESS CHART

PROBLEM

Meeting motivational needs of Distance Education Students

RESEARCH

Student Motivation

Media use and characteristics

Case Studies

SYNTHESIS

Options for learning using University of Windsor Media Environment and availability for students

RESOLUTION

Students Accessible to Campus

Students near Study centres or subcampus

Total Distance Format

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From this information, the research indicated the need to review the use of media technologies in distance programs with reference to three groups of students as on the chart:

a) those accessible to campus;
b) those near a study centre or sub-campus;
c) those who are remote and require a total distance format.

The distance program for each group of students must include opportunities for activities which meet the needs of those students and will depend on the technologies available for each group. Courses offered for students at the campus, at a sub-campus or for students who cannot reach a university centre should use different combinations of media to help satisfy student motivational needs.

In the case studies and in other distance education literature, the effectiveness of various media technologies in distance learning programs was assessed by those offering the programs. A prior decision had been made that certain technologies could be useful in the programs, and helpful to the students; therefore a decision was made to use particular media for these programs. Institutional experiences in particular applications of the media did not lead to the decision to abandon media use in any of the cases. The researchers who were usually instructors or administrators of courses based on particular media materials were able to find evidence that the particular medium they were using was useful in the distance education program. Not addressed was whether some other strategy might have worked better and why. Researchers supported the particular medium they were
using. There were no suggestions by any that different media might be more appropriate, although several were enthusiastic about adding another medium (such as computer) to the existing course materials. The time and expense involved in producing materials not the technical capability, usually determined the extent to which institutions used new media.

The difference in quality between the slick, professionally produced, expensive Open University television programs and the talking head lectures of the Wayne State University Weekend College program have been noted. Yet both institutions support the use of television programs as one of the prime components of their distance education programs. It is interesting that Athabasca, because of production costs and unavailability of production experts considers its use of television to be only supportive or enriching in distance education. That such varied applications of television programming can be considered useful in distance education indicates that employment of this medium must be viewed in the context of the course content, support services and resource environment.

Most distance education researchers have attempted to generalize from their experience in media technologies to the usefulness of a particular technology in distance education. From this study, it is evident that generalizations are not appropriate and can be misleading. Effectiveness of media technologies depends on the particular situation; formula solutions are not applicable. The appropriateness of the use of any media in distance education is affected by the other components of the learning content and environment. Before choosing a medium or a mix of media to provide a learning environment, the institution must look at effectiveness in
transmitting content, availability, accessibility, and cost. In order to provide an effective learning experience, the institution must also provide opportunities to meet the motivational needs of students. Therefore, media must be chosen which provide opportunities for growth and development, serve to encourage change in the student's habits and patterns of interaction, and give the student access to tutors and other university resources.

Since generalizations are not applicable for all types of mediated content, for all needs of students, it is advisable to include in distance education programs a variety of resources to suit the range of student requirements and accessibility. These may include non-classroom strategies as well as mediated materials.

As a result of the research in this study a checklist has been developed for the selection of media materials in a distance education program. (See Appendix B).

This checklist will provide valuable information about the characteristics of the media contemplated for a particular application. Application of the Media Selection checklist will indicate the strength or deficiency of each medium in meeting student motivational needs. If these needs are not addressed by the use of a particular medium, the addition of materials using another technology or instructional strategy will enhance the students' learning environment. The checklist can then be used as the basis for further investigation into the feasibility of employing particular media technologies in a distance education program.
Conclusions with Respect to the University of Windsor

The title of this study indicated a search to determine if the University of Windsor could employ media technologies to meet the needs of adult students at a distance. The research in Chapter II indicated the needs of adult distance students. Chapter III outlined the criteria by which to assess media used in distance education. Chapter IV reviewed the technologies and strategies used to assist students in three distance education cases.

In order to assess the options for the provision of distance education by the University of Windsor, the institution's access to media technology, expertise, and distribution systems was outlined in Chapter V. The University's capabilities to employ those media technologies which had been useful in motivating students in the case studies were noted. The University of Windsor has available media resources which, if used effectively in distance education applications, would meet the needs of adult students.

The University of Windsor employs some media technologies in regular classes, at sub-campus classes, and in its current distance courses. The use of media in distance programs not only makes available programs for those who are unable to attend regular classes, but also helps to provide the motivation necessary for adults to learn effectively. This study has demonstrated that it is not necessary to have a professor in attendance at all times and that there are other ways of meeting students' psychological and academic needs.

The use of additional media in university programs does not remove the emphasis on print as the main source of content material. While media uses can provide content enrichment and motivational reinforcement, print
materials remain the primary content carriers in all three of the case studies. Whether students meet regularly as in Wayne State University programs, or they meet infrequently or not at all as in some Athabasca and Open University programs, textbooks and other printed matter constitute the main source of information and opportunity for intellectual growth in courses. The addition of materials and contact using media technologies can enhance the quality of the educational experience for the students and motivate them in their studies.

The following are recommendations for the employment of media to meet the needs of students as identified in Chapter II: a) with some access to campus; b) those near a study centre, and c) more distance students. Also indicated are some very important limitations to the University's capabilities to expand distance education offerings, and some secondary advantages to operating such a program.

**Students With Some Access to Campus**

Many adults who live near campus are restricted, not by spatial separation, but by time constraints. Distance education strategies that reduce the number of specific hours students must attend the campus permit much more flexibility in learning patterns. Students can complete course work at times convenient to their work and family schedules, instead of having to be available for regular class meetings.

To serve this clientele, the following media technologies would meet the criteria of the media selection checklist in providing student motivational encouragement.

Print materials in most courses meet the major requirement for subject
content, are accessible and acceptable to both students and instructors, and provide some opportunity for intellectual growth. Courses for local students could employ audiocassettes for students home use to add content and/or feedback on projects (as do some courses at Athabasca, the Open University and the University of Waterloo). Telephone access to the professor provides additional opportunities for content clarification and feedback. Occasional meetings, while reducing student autonomy, would provide social interaction and necessitate a change of routine, found to be effective in motivating students at the Weekend College. Alternatively audioteleconferences (as at Athabasca) would provide opportunities for some interaction with necessitating travel to campus. Videoprograms on broadcast and cable (as at Wayne State University) and/or in libraries (as at the Open University) would add subject matter content, and a minor change of routine to keep the student involved in the course. Ideally, libraries would need reference copies for in-house viewing, and lending copies for students to take home for maximum flexibility of access.

Complete program packages including mediated materials, which students could study independently, would suit those who wished to progress through courses more quickly or more slowly than the class semester plan, but would be difficult to administer.

Video programs which can be rented or purchased at a reasonable cost can be effective learning tools. The extensive production of complete series of television programs is prohibitively expensive for the university to undertake alone. However, in some popular subject areas, (currently, Sociology), consortial arrangements such as those the University of Windsor
has with TVOntario are possible. Consortia controlled productions also could be undertaken with partners in Michigan institutions or at WTVS and other Public Broadcasting Service television stations.

The use of the following media technologies, therefore, can meet the motivational needs as identified in Chapter II of local adult students unable to attend regular classes:

- audiocassettes
- telephone
- audio teleconferencing
- broadcast and/or cable television
- video programs in libraries

All the above technologies are readily available at the University of Windsor. Occasional meetings for discussion or examination may be considered desirable in some classes. The future possible addition of computers for student access to information and conferencing, is discussed in the next section.

Students Near a Learning Centre or Sub-campus.

For students at some distance to the campus but with access to a University study centre, (such as those in Chatham and Sarnia), the same media technologies are applicable. The courses would require some adjustments in student access strategies, however. Since students would be telephoning long distance, a message system is needed to return inquiries to avoid unproductive long distance charges. Audioteleconferencing in situations where the student is not near the campus has great advantages for both professors and students who can meet without travelling great distances. Opportunities for social interaction among students is provided if they meet as a group at the local centre to discuss course concerns among themselves, and with the instructor by audioteleconferencing. Athabasca
University has found teleconferencing motivates students by satisfying their need for interpersonal contact.

Because the range of reasonable television reception is about 100 km., courses including video programs aired from the Windsor and Detroit area need to be supplemented by cable distribution and library videocassette copies for students who cannot receive a good broadcast signal. Again, both reference and lending cassettes at libraries would assist students.

The developing area of computer conferencing could have applications in the near future for courses at study centres. A microcomputer at the study centre linked by telephone to the campus would permit distribution of information and sending of messages between instructors and students.

The Open University is experimenting with computer use in a few of its courses, not only from study centres, but also from students' homes. Somewhat further into the future when home computer compatibility is assured, this method of conferencing or mailing will be possible, as easily at a distance as near the campus.

Many adults, however, have a great fear of and ignorance of computers. Programs to overcome their aversion to the technology would be necessary before computers could be effectively employed in distance programs. Since the domestication of computer technology is proceeding rapidly, it likely will be useful in distance education in the future. The University should be continually assessing computer developments and be prepared to exploit this technology to assist student learning as soon as it is feasible to do so.

As indicated in Chapter V computers can also be employed to add visual images to an audioteleconference. Words, pictures and graphs can
supplement a professor’s audio material, much as a classroom blackboard or overhead is used. The addition of a modem and second telephone line to the audioconference is required. This technology is available now, and can be used to link a regular class on campus to a second class in the same course at another location, as well as being applicable in distance education courses.

Small classes at several locations could thus be linked, making efficient use of professor’s time, and providing educational opportunities which could not be justified economically as individual classes.

The media technologies useful where students have access to study centres therefore are:

- audiocassettes (mailed as for local students)
- telephone (with messaging capability)
- audio teleconferencing
- broadcast and/or cable television
- videoprograms in libraries

Future:
- computer messaging
- computer conferencing
- computer graphics with audioconferencing.

Cooperative arrangements with libraries and cable companies, and staff for the sub-campus equipment and/or study centres are necessary.

Students Beyond Study Centres

To consider expanding to areas where students would not be accessible to study centres demands a careful assessment of student service methods. Audiocassettes and telephone contact are possible, but students would have little if any contact with each other and may feel isolated in their studies. Frequent print or audio contact, and occasional audioconferences could help to meet the motivational needs of these students.
Distance education programs beyond those where study centres are feasible initially would be limited to those courses where all content and contact could be provided using print and the following media:

- audiocassettes (mailed)
- broadcast television
- telephone contact
- audioteleconferencing
  (for limited student numbers, individually dialed).

The unique position of the University of Windsor as the closest university to the PBS station distributed by Cancom across Canada should be explored. Although the use of television is limited in distance education and is not suitable in all courses, televised programs do supply content and interest, and help to motivate students by assisting with intellectual growth and providing a change of routine. The use of television is a non-threatening method of attracting students as well. At the Open University, many students have viewed the programs prior to enrolling. Their understanding of and interest in the content encouraged them to enrol. The Detroit PBS station does receive enquiries from Canadians in distant communities who see the teleseries via Cancom and who wish to enrol for courses. The University of Windsor should investigate the role it could play in assisting such students. The university could enrol them directly, and, to assist students, employ audiocassettes, extra print materials, and telephone contact, with exams supervised by local individual arrangement. Alternatively, the University of Windsor should explore possible co-operative arrangements with universities closer to these students, developing into the Canadian leader and PBS contact for an extensive network of educational institutions, with tutor assistance provided by the local institutions.
Consortia of United States Universities and PBS stations produce most of the available North American telecourses. These are sold to other universities for distance education offerings. The University of Windsor's geographic position, as well as its extensive media equipment and studios could be put to advantage by becoming involved in co-productions across the border as it is with TVOntario.

With Cancom's agreement, the distribution of Detroit based programs on any of the three major networks, as well as on PBS could be replaced with additional educational programs. An extensive Canada-wide network of institutions and learners could create sufficient demand to convince Cancom to substitute educational content for regular programs of little interest outside Detroit. While the future possibilities for the University of Windsor connection to WTVS is speculative at this point, this availability of media resources should be explored fully, in order not to miss any opportunities to provide educational programs for students and accrue other benefits for the University.
Limitations

Any institution has a set of priorities and constraints within which decisions are made. The limiting factors of the ability of the University of Windsor to add to its distance education offerings are mainly financial:

1. The University of Windsor (as all Ontario Universities) has severe funding restraints, making it difficult for the institution to invest in equipment or expand offerings.

2. The restrictions of the traditional academic year create inhibitions for non-standard course approaches and time frames for courses. The University has few resources to relieve Faculty time for new ventures in this or other fields.

3. The costs of video production would be prohibitive for the University to attempt to produce whole courses on its own.

The other major limitation to the University becoming heavily involved in Distance Education is that a wide variety of courses would have to be made available in order for students to complete degrees in this mode. To satisfy the major regulations of even a limited number of B.A. degrees would require extensive offerings. The University may want to review again the advantages of general studies degrees for part-time campus, sub-campus, and distance students. This is available at several other Canadian Universities, and in the past history of the University of Windsor (as Assumption College) the program resembled in some ways current general studies programs.
Advantages to the Institution of Distance Education Expansion

There are several possible advantages to the University of Windsor involvement in the distance education field.

If, as Foot has predicted, there is a drop in full time enrolment and increasing demands for part-time study, the University would be in a position to expand its part-time enrolment to retain enrolment levels.

The inclusion of adults students, on campus and distance students, provides a dynamic mix of age levels for courses and research. Meeting the needs of adult students may have benefits in the future reflected in family enrolments, alumni institutional loyalty, and successes in development funding.

Some of the suggested equipment requirements for distance education courses have other campus and extra mural applications (e.g. computers, videocassette players). A teleconferencing bridge could be rented to local industries, and would be used for guest lectures, faculty conferences, secondary school liaison, and professional seminars to distant locations.

Opportunities for achievement would be available in co-operative arrangements with other Canadian Universities, TVOntario, Michigan institutions, and the PBS network. As part of a consortium, production grants would be accessible. In co-operation with Lakehead and/or Laurentian University, current Ontario funds designated for distance education in the north could be accessed. The talents of some of the University's best researchers and teachers could be exposed to a larger audience, enhancing the University's image.

Revenue could be realized from the sale of any distance education products including textbooks, video programs, study guides and instructor's
manuals. Rentals of programs for non-course viewing could recoup some costs.

Research opportunities would be created in areas such as instructional design, and student services by distance education activities.

A detailed study of the limitations and advantages to the University is an area for further research, which would entail a complete examination of the university's current capabilities in providing media enhanced distance education programs, the possible offerings using this form of instruction, the costs of production and distribution of such courses, and the possible revenue and benefits to the university of operating expanded sub-campus and distance education programs.

The media must be viewed in the context of the support provided in the overall learning environment. All media can be used to extend learning opportunities and permit student autonomy. The omnipresence of media - from radio to audiocassettes, from television to videocassette - and the growth of applications in personal computer use indicate the media's increasing domestication. The potential for learning using media is extensive. Bates (1984) has predicted that Distance Education will be the primary mode of university education of the future. If so, universities will have to expand their knowledge of effective use of the media to provide opportunities for learning to students who can be attracted to the institution's programs, even if they are not geographically accessible to the campus or able to attend regularly scheduled classes.

This study has demonstrated that the University of Windsor can meet the motivational needs of adult distance students using media technologies;
In fact, the university is doing this on a limited basis at present. Some further employment of media technologies would enhance the educational opportunities for distance students and is technically possible for the university to undertake.

**Suggestions for Further Study.**

To embark on an extensive distance education program, further questions need to be addressed.

1. From the assessment of the motivational needs of distance students, questions continue about their educational goals. Further research would indicate changing trends in their needs, their satisfaction with media materials and educational strategies as these develop.

   The educational goals of students may vary according to the changing demands of the workplace, economic environment and leisure time available. As the large baby boom cohort studied by Foot (1981) ages, their educational needs may change.

   Other groups of adult students may emphasize other needs or educational goals.

2. From the case studies, assessments of success rates and retention rates should be viewed not only according to standard institutional criteria but also according to the students' satisfaction and their expectations for learning in the distance mode.

   Athabasca University (1984) maintains that many students could not have continued their education at all if they could not enrol in distance education programs. Even if many students do not complete degrees by distance education, they still have learned in this mode. For some, the anonymity of distance education may be attractive if they are unsure about
their ability. Having completed a distance course successfully, they are confident to go on to classroom study. Follow up research is needed on these distance "drop outs" to determine the later value of their studies, and its usefulness as a predictor of later academic success. Retention rates for adult students must take into account in a meaningful way those who leave their studies for a session or two to take care of pressing work or family responsibilities. Many of these may still consider themselves students, progressing toward a degree but not enrolled for a term or two. Some may choose distance education courses for sessions when classroom attendance is impractical for them. These students may then "drop out" of distance education when they can return to class, or when they have exhausted the opportunities for distance study. Long term follow up on these students is needed.

3. Technological changes are dramatically altering the communications environment at a rapid pace. Satellite and cable distribution has increased the availability of television and radio channels in the home. Distribution systems cross international borders, and policies regarding control of telecommunications are being imposed to cope with the new environment. Digital recording, smaller formats, and computerised editing affect the quality and flexibility of program content. Technologies on the horizon which will affect home access includes Multipoint Distribution Systems (MDS) and interactive cable. Computer connections to cable systems suggest the possibility of individual choice program call-up rather than viewing by program schedules. The powerful interactivity possible by combining computers with other technologies demands further research as developments occur.
4. The lessons of this study can be used as the basis for a detailed study by the University of Windsor on the feasibility of expanding its programs for non-traditional students, and the formulation of a practical plan for implementation. Courses for local students could employ audiocassettes for students' home use to add content and/or feedback on projects (as do some courses at Athabasca, the Open University and the University of Waterloo). Telephone access to the professor provides additional opportunities for content clarification and feedback. Occasional meetings, while reducing student autonomy, would provide social interaction and necessitate a change of routine, found to be effective in motivating students at the Weekend College. Alternatively, audioteleconferences (as at Athabasca) would provide opportunities for some interaction without necessitating travel to campus. Videoprograms on broadcast and cable (as at Wayne State University) and/or in libraries (as at the Open University) would add subject matter content, and a minor change of routine to keep the student involved in the course. Ideally, libraries would need reference copies for in-house viewing, and lending copies for students to take home for maximum flexibility of access.

5. Complete program packages including mediated materials which students could study independently would suit those who wished to progress through courses more quickly or more slowly than the class semester plan, but would be difficult to administer. Possible methods of organizing and administering these programs should be assessed.

The University of Windsor is currently meeting the needs of some adult students. Evaluation of institutional priorities and continuing study in distance education developments would indicate the steps to be taken to meet the needs of many more potential distance adult students.
APPENDIX A
PART-TIME STUDIES
UNIVERSITY OF WINDSOR
SURVEY OF PART-TIME TELE COURSE STUDENTS
APPENDIX A
PART-TIME STUDIES
UNIVERSITY OF WINDSOR
SURVEY OF PART-TIME TELECOURSE STUDENTS

The purpose of this survey is to gather information on the needs and goals of telecourse students. This information will be used to plan future academic programs designed to efficiently meet your needs. Since telecourses are relatively new, your views and opinions are particularly valuable.

It should take you less than 15 minutes to complete the questionnaire. It asks three basic questions:

1. The reason(s) you are taking courses.
2. Your evaluation of your university experience thus far, and,
3. Your thoughts on how the part-time studies program may be improved.

The survey asks for some confidential information so you need not identify yourself in any way. Complete the questionnaire by using a pencil to fill in one of the five circle choices for each question on the computer answer sheet. Choose the response that most closely reflects your feeling or viewpoint. Please complete every question.

For example:

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>agree</th>
<th>not sure</th>
<th>disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Improve my present skills and/or qualifications</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>2. Earn a University credit while working</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>

Please return the questionnaire and answer sheet in the stamped envelope provided as soon as possible.

Your cooperation and assistance in helping improve the University of Windsor Part-Time Studies program is very much appreciated.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>under 20</td>
<td>20-29</td>
<td>30-39</td>
<td>40-49</td>
<td>over 50</td>
</tr>
<tr>
<td>2</td>
<td>Sex</td>
<td>M</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Marital status</td>
<td>Single</td>
<td>Married</td>
<td>Divorced</td>
<td>Widowed</td>
<td>other</td>
</tr>
<tr>
<td>4</td>
<td># of children</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4/more</td>
</tr>
<tr>
<td>5</td>
<td>Employment status</td>
<td>Unemployed</td>
<td>F/time employ</td>
<td>P/time employ</td>
<td>Retired</td>
<td>Homemaker</td>
</tr>
<tr>
<td>7</td>
<td>Family income level $ annually</td>
<td>Under $10,000</td>
<td>10-19,000</td>
<td>20</td>
<td>29,000</td>
<td>30-40,000</td>
</tr>
<tr>
<td>8</td>
<td>Access to Cable TV</td>
<td>YES</td>
<td>NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Distance to campus or off-campus centre</td>
<td>walking distance</td>
<td>2-5 km</td>
<td>5-10 km</td>
<td>10-20 km</td>
<td>over 20 km</td>
</tr>
<tr>
<td>10</td>
<td>Physically handicapped</td>
<td>yes</td>
<td>no</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I learned about telecourses from</td>
<td>Univ. mailing</td>
<td>Newspaper</td>
<td>Another student</td>
<td>University staff</td>
<td>Cable or broadcast message</td>
</tr>
<tr>
<td>12</td>
<td>This is my first U.course</td>
<td>yes</td>
<td>no</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>This is my first telecourse</td>
<td>yes</td>
<td>no</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Total number of courses I am taking this semester</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5 or more</td>
</tr>
</tbody>
</table>
PART 11

Based on your experience in the telecourse to date, indicate your attitude toward the following:

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Not Sure</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.</td>
<td>I would enrol in another telecourse.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>I would recommend the telecourse to others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>I desire more in-person meetings with the telecourse professor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>I want to meet regularly with other telecourse students.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>The telecourse demanded more of my time than a regular classroom course.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>A telecourse is more convenient for me than a classroom course.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>Help from the telecourse instructor was available when needed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>A telecourse is easier than a regular classroom course.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>Telecourse broadcasts in the early morning are convenient for me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>Telecourse broadcasts on Saturday afternoon are convenient for me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based on your university experience to date, what is your evaluation of the following:

EXCELLENT  GOOD  NOT SURE  POOR  VERY POOR

25. Opportunities for student interaction with professors.
26. Quality of film and videocassette programs used.
27. Quality of audiovisual equipment available in library.
28. Fairness of grading system.
29. Courses meet student expectations.
30. Relevancy of course content.
31. Length of examinations.
32. Quality of instructors' course outline.
33. Level/quantity of content covered.
34. Quality of individual assignments.
35. Library materials.
36. Accessibility to campus life.
37. Accessibility to athletic facilities.
38. Accessibility to audiovisual resources.
39. Availability of information on social activities/speakers etc.
40. Quality of telecourse text.
41. Quality of telecourse study guide.
42. Convenience of Cablecast/Broadcast Programs.
43. Usefulness of Telecourse Orientation Meetings.
I enrol in a university telecourse in order to:

**STRONGLY AGREE**  **AGREE**  **NOT SURE**  **DISAGREE**  **STRONGLY DISAGREE**

Begin your answers with #44 on the Answer Sheet.

44. Improve my present job skills and/or qualifications.
45. Earn a University credit while working.
46. Qualify for promotion.
47. Find a marital partner.
48. Meet a new dating partner.
49. Meet a suitable sexual companion.
50. Reduce my feelings of loneliness.
51. Meet people with different backgrounds.
52. Satisfy personal interest.
53. Grow intellectually.
54. Get out of a rut.
55. Satisfy companionship needs.
56. Have more leisure/recreation opportunities.
57. Free myself of my parents.
58. Free myself of bad habits.
59. Free myself of boredom.
60. Make new business contacts.

**Part V**

61. Please indicate your current enrolment:
   
   A  Psychology  46-116  
   B  Physics  64-191  
   C  Both telecourses  

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Appendix B

Media Selection Checklist

1. Course
2. Level
3. Probable Enrolment
4. Geographic Location of Students
5. Media accessible by students - in home:
   - audio
   - video
   - computer

   - in the community:
     - audio
     - video
     - computer

6. Print Medium:
   provides main source of content?
   available for each student?
   provides exercises and feedback?
7. Media Criteria

1. Effectiveness in Transmitting Content
   Integral part enriching
   of course peripheral

2. Accessibility
   for student:
   - fully domesticated may be available
     at home
   for instructor
   - familiar easy to learn extensive
     preparation needed

3. Acceptability
   to student relevant interesting unclear
   to instructor
   high quality fair trivial

4. Cost Factors
   for student inexpensive reasonable expensive
   for institution inexpensive reasonable expensive

8. Provision of Student Motivational Encouragement

Able to provide:

1) Intellectual growth
   significant some Insignificant
   level

2) Change of routine, social patterns
   Significant some Insignificant
   level

3) Access to tutors and counsellors
   Significant some Insignificant
   level
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   Major: English.

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Co-ordinator of Extra-mural Programs, University of Windsor,  

Assistant Co-ordinator, Extramural Programs, University  
   of Windsor, 1974-1978.

Admissions Officer, Registrar's Office, University of Windsor,  

Professional Memberships

Canadian Association for Distance Education.  
Ontario Council for University Continuing Education.  
Association for Media and Technology in Education in Canada.  
International Council for Distance Education.  
Canadian Association for University Continuing Education.  
Ontario Association for Continuing Education.