THE EFFECT OF AFFILIATION ACTIVITIES ON DROP-OUT, SATISFACTION, AND PERFORMANCE IN DISTANCE EDUCATION

by

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We accept this thesis as conforming to the required standard.

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Abstract

Students who are unable or unwilling to attend classes at an educational institution can often study at home through distance education programs. A consistently noted problem for students in these programs centres on the isolation experienced in such independent study. This sense of isolation may be one of the causes of the high drop-out rates common in distance education.

The hypothesis of this study was that interaction with other students via telephone conferencing would decrease the drop-out rate, increase student satisfaction and improve academic performance.

Twenty-nine students from a community college in British Columbia were involved in the study. They completed a questionnaire measuring the personality constructs "need for affiliation", "need for achievement" and "need for autonomy". They were randomly assigned to either the treatment or control group. Members of the treatment group participated in telephone conferences with the course instructor and three or four other students. Members of the control group received only individual telephone calls from the instructor. The completion rates of the two groups,
measures of satisfaction and marks were compared.

Only 2 of the 15 students in the treatment group dropped out while 7 of the 14 students in the control group failed to complete the course. The chi square with one degree of freedom was 4.55 significant at the .03 level. A Yates correction for continuity of curve, which was applied because of the small numbers, lowered the significance to .08.

Differences in measures of student satisfaction were not statistically significant.

For all students there was a moderate correlation between student achievement as measured by marks and need for affiliation, \( r = -0.38, p = 0.10 \). However, when the correlation was computed for the treatment group only, \( r = -0.11, p = 0.72 \), but for the control group only, the correlation was \( r = -0.70, p = 0.08 \). This suggests that for the treatment group student-to-student interaction may have moderated the effect of the students' need for affiliation on student performance.

The results indicate that student-to-student interaction may be beneficial to students in distance education courses and that need for affiliation may play a role in student success. Further study is recommended.
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CHAPTER I
INTRODUCTION

The Problem

Traditionally educational programs have been provided to learners gathered at a central location. As far back as 3000 B.C. those wishing to become priests or scribes travelled to the libraries of Egypt and Mesopotamia to study (Shimahara, 1982). Young Greeks came to the cities to learn under the tutelage of renowned scholars in the third and fourth century BC (Marrou, 1982). In the 13th century the first western universities emerged as students travelled to European centres of learning (Riche, 1982). Today this method in which learners gather together under the direction of an instructor remains the primary means of providing educational programs.

However many people with a need or a desire for further education are unable to participate through this traditional method of providing educational programs at a central location. They may be unable to attend such classes because of family and job responsibilities, lack of transportation or physical handicaps.

Since it is not always feasible for learners to gather at a central location, other methods of delivering educational programs which take advantage of modern technology have been developed. Educational
programs are now provided to learners throughout the world by mail, by telephone line and by satellite, radio or television broadcast or by a combination of these. This alternate method of delivering educational programs is commonly referred to as "distance education".

Distance education has not replaced the traditional community of learners meeting under the direct supervision of their teacher. Instead, it has been used, in most cases, to provide opportunities to new groups of learners; those who for geographic, economic or personal reasons are unable to travel to an educational institution to participate in classes (Purdy, 1983). One of the major uses of distance education has been to provide adults with continuing opportunities for learning.

Adults, for the most part, participate in educational programs on a voluntary basis. Their motivation to learn must be strong enough to overcome such obstacles as lack of time, the distractions of family or job problems, limited educational backgrounds, and lack of recent study experience. An additional problem for some individuals is that independent study may not meet their educational and personal needs. As a result high drop-out rates are characteristic in many distance education programs.
Houle (1973) noted that many distance education students may not be:

gifted in independent, print-oriented learning. They need the stimulation of a mentor or group of like-minded people who will challenge but not over-assist them. (p. 148)

In many distance education programs students work alone and are often never or only rarely in contact with each other. For students who need personal interaction, the lack of such opportunities may be detrimental to their progress. They may be high risks for dropping out for motivational rather than academic reasons.

Definitions

Holmberg (1977) has provided this definition of "distance education":

The term distance education . . . covers the various forms of study at all levels which are not under the continuous, immediate supervision of tutors present with their students in lecture rooms or in the same premises but who nevertheless, benefit from the planning, guidance and tuition of a tutorial organization. (p. 9)

One of the major concerns of distance educators has been the level of drop-out in distance education programs.

"Drop-out" has been defined as "the proportion of students who enrol for a course but withdraw before the final examination or test" (Glatter & Wedell, 1971,
In this study students were considered to have dropped out if they registered but failed to complete the course. Formal withdrawal was not necessary.

One possible reason for drop-out in distance education programs is the lack of opportunities for students to affiliate with each other. "Need for affiliation" has been defined as "a desire to establish and/or maintain warm and friendly interpersonal relations" (French & Chadwick, 1956, p. 296). This construct can be measured through a variety of tests and scores can be obtained which rate individuals as to their level of need for affiliation.

Purpose of the Study

The purpose of this study is to find out if providing an opportunity for interaction among students would affect the drop-out rate, the perceived satisfaction, and academic performance of students in a distance education course.
CHAPTER II
REVIEW OF RELATED RESEARCH AND THEORY

Distance Education

Origins and development. What we refer to today as distance education began as correspondence education in which lessons were sent through the mail to students who completed assignments and mailed them back to tutors. One of the early examples of distance education involved Isaac Pitman who, in the 1840's in England, sent his instructions in shorthand by postcard to students (Holmberg, 1977). Elliot (1978) described how students from 1858 onwards could obtain credits from London University simply by sitting for examinations. Many of these students learned from private tutors who sent them lessons through the mail. By 1887 the University Correspondence College at Cambridge was established to prepare students for the London University exams. This correspondence school was incorporated with the National Extension College in Britain in 1964. The University of Chicago offered the first university sponsored correspondence programs in the United States beginning in 1891 (Educational Research Institute of British Columbia, 1982). In Canada, correspondence study was first provided by Queens University in 1899 (Selman, 1966).

Although print has continued to be a staple of distance education courses, radio has been used in
education in a number of countries. The BBC's school service was launched in 1924 (Cathcart, 1978). Australia has provided radio broadcasts to elementary and secondary students living in isolated areas since 1932 (MacKenzie, Postgate & Scupham, 1975). In the 1940's the Canadian Broadcasting Corporation produced radio farm forums and provided pamphlets to accompany these programs (Perraton, 1980). The University of Wisconsin began educational radio broadcasts in 1917. The CBS American School of the Air ran from 1930 to 1940 (Purdy, 1983). Accion Cultural Popular (ACPO) was established in 1947 in Colombia. A local priest, Father Salcedo, used radio to keep in touch with his parishioners. He went on to print booklets to support the broadcasts and to create a network of local co-ordinators. Today ACPO is one of the largest educational publishers in Colombia and still uses broadcasts and local co-ordinators (Perraton, 1980).

Many of the first educational uses of the broadcast media were designed to meet the needs of elementary and secondary school students. Television services for schools were established in France in 1951, in Britain in 1957 and in Italy in 1958 (Cathcart, 1978). In the United States the Midwest Program of Airborne Television broadcast programs to elementary and secondary schools in 1959 from an
airplane circling over northern Indiana (Cathcart, 1978). Because television was seen as a superficial medium by many, use of this new technology was generally met with scepticism by the educational community. As a result educational programming for use in elementary and secondary schools tended to be underfunded and underutilized (Cathcart, 1978).

Programming for adults tended to be better received. Among the examples of the earliest programming for adults are the offerings of the University Of Iowa, beginning in 1933 and credited with being the first educational television broadcasts; the first non-commercial station, KUHT, on the air in 1953 in Houston; the Chicago TV College which began broadcasts in 1956; and Sunrise Semester which began broadcasting in 1957 and is still running on CBS today (Purdy, 1983). In the 1960's the provincial government in Quebec developed a program called TEVEC. This involved a series of television programs which were teamed with a print component and local discussion groups. TEVEC was designed to enable adults to obtain ninth grade equivalency and to teach them how to use community resources to effect social change (Perraton, 1980). Programs such as TEVEC which used a variety of components tended to be more successful than those that depended on television alone (Perraton, 1983).
Cathcart (1978) commented that by the 1970's educational broadcasters had begun to assess the potential of television more realistically. It was seen as just one medium available for education and one which should be used in conjunction with other media. Educators also became aware that although instructional design was important, there needed to be more emphasis placed on the needs of distance learners for support and advice (Sewart, 1983).

In the 1970's institutions which were involved in distance education tended to take a multi-media approach and to build in a variety of avenues through which a student who was experiencing difficulty could receive support.

One of the first institutions to take these two factors into account was Britain's Open University which was created in 1969 and which began enrolling students in 1971. It now enrolls over 80,000 students throughout the United Kingdom and is the largest degree granting institution in that country (Waters, 1983). Purdy (1983) has described similar institutions which were established in the United States. In 1971 the State University of Nebraska (SUN) began to provide distance university courses using television, radio and print. In 1974 SUN became part of a consortium of midwestern universities known as the University of Mid
America (UMA). The UMA develops distance education courses which are offered by the member institutions. Miami Dade Community College in Florida and Coast Community College in California began to provide distance education opportunities in 1974.

In a number of countries educational radio and television programs are broadcast via satellite. The Educational Research Institute of B.C. (ERIBC) has reviewed a number of distance education systems that use satellites. The University of the South Pacific, a consortium of 11 nations in the southern Pacific area has been delivering educational programs since 1974. Satellites have been used successfully in India to deliver educational programming dealing with agriculture, health and family planning (ERIBC, 1982).

Distance education in British Columbia. Much of British Columbia's population is scattered throughout vast, relatively undeveloped rural areas. The need to provide distance education services to students who could not travel to schools was recognized by the provincial Ministry of Education in 1919 when correspondence courses were made available to students at the elementary school level (ERIBC, 1982). The service was expanded to secondary school students in 1929 (ERIBC, 1982). The first opportunities for post-secondary education in a distance education format
were offered by the University of British Columbia in 1949 through the Guided Independent Study division (ERIBC, 1982). The university began experimental uses of television via local cable channels in the late 1960's and early 1970's (Rosen, 1984).

The Macdonald Report of 1962 called attention to the need for more post-secondary opportunities in the province for people in outlying geographical areas (ERIBC, 1982). Further higher education institutions were established including the University of Victoria and Simon Fraser University as well as a number of two-year community colleges. The Directed Independent Study Course (DISC) Program offered the first distance education courses at Simon Fraser University in 1975 and the University of Victoria Extension Division began offering distance education courses in 1982 (Yerbury, 1985).

In 1976 the province began to develop the framework for a system of distance education which would involve existing institutions and create some new ones (ERIBC, 1982). Today most post-secondary institutions in the province have an outreach department which provides educational programs to students at a distance. One institution, catering only to distance education students, The Open Learning Institute (OLI), was founded by the provincial Ministry
of Education in 1978 (ERIBC, 1982). It provides university, technical and adult basic education courses mainly through correspondence materials.

To facilitate these outreach programs the Knowledge Network was established by the Ministry of Education in 1980 (ERIBC, 1982). It operates a satellite broadcast channel over which the televised segments of courses offered by provincial universities, colleges, the Open University and a variety of other institutions are aired. It also provides general interest programming of a broadly educational nature.

In 1984 the Open University Consortium was formed to co-ordinate and promote university-level distance education courses. It includes all three provincial universities, the Open Learning Institute and the Knowledge Network. One of the roles of the consortium is to ensure that university credits earned through classroom and distance study can be combined to form the basis of a university degree from the Open Learning Institute (Yerbury, 1985).

**Characteristics of distance education.** According to Keegan (1980) there are six characteristics of distance education programs which distinguish them from traditional programs. These are: the teacher and learner are separated; there is a curriculum organized by an institution available to the learner which is not
the case when the learner is involved in informal private learning; technical media such as print or television unite the teacher and learner; there is interactive communication between learner and teacher which distinguishes distance education from other forms of educational technology; students are taught for the most part as individuals rather than in groups; and there is an industrial aspect in that course components can be manufactured in large numbers and provided to a mass audience.

Keegan (1982) classified distance education programs using four categories. In the correspondence model the learner depends almost entirely upon postal contact with the institution. The multi-media system offers a wide range of media, including in some cases, face-to-face interaction. The consultative model involves attendance at seminars as well as the use of self-instructional materials at home. With the integrated model distance learners are taught by the same staff and follow the same schedule as learners who are taking courses on campus.

Holmberg (1981) outlined these aspects of distance education courses: the courses are normally media-based and designed to be largely self-instructional; since the instructor and student are separated effective instructional design is crucial to student success;
ideally there should be systematic step-by-step planning and development of educational measures. This would include defining goals and objectives; analysing target groups; determining the content and structure of the course; developing organizational and administrative supports; choosing communications media; planning for interaction between instructor and student; producing the course materials; evaluating the course; and revising the above as required.

**Media used in distance education.** One of the major differences between traditional methods of education and distance education is the use of media for much of the communication between the instructor and the student. Of course media is used in the classroom as well and many distance education programs do provide some opportunities for the students to meet. At the Open University in Britain about 80% of the teaching occurs through the print media, 10% through radio or television broadcasting and 10% through seminars and summer schools (Keegan, 1983).

Keegan noted that print is the primary media used in most distance education programs although many also involve audio, video, computers and kits.

Print media includes books, manuals and courses offered via the newspaper. Audio includes radio, audio cassettes and telephone conferencing. Video includes
television broadcasts, cable television, video cassettes and, although they are used to a lesser extent, videodisc, videotext and slow scan television. Educational television and radio broadcasting often involves the use of satellite. The use of computer assisted instruction in distance education programs is increasing. In some programs kits which may include samples, specimens, special equipment, slides, models or games are sent to the students.

Assignments play a dual role in distance education. They provide an opportunity for active learning, that is for activities which go beyond reading, watching or listening, and they provide an opportunity for feedback from the instructor (Perraton, 1983). In distance education most of the communication between instructor and student is based on assignments and consists of written comments and advice attached to and returned with the assignment through the mail (Holmberg, 1981). However the telephone is becoming increasingly important in instructor-student communication.

Strengths and weaknesses of distance education. There are a number of advantages to distance education. For students who cannot attend an educational institution it provides an opportunity to learn and to gain credits. A student can study at the location,
time and pace which is most convenient. Because the course content is presented through media considerable planning usually goes into the course design and delivery structure; it is possible for students to have access to top subject specialists and educators available through print, television programs, audio tapes and other media (Holmberg, 1981).

There are also disadvantages. When a student fails to understand material he may not be redirected until assignments are marked and returned by mail, a process which may take several weeks. Although most distance learning delivery systems provide an opportunity for students to telephone their instructors with questions some students may be intimidated by this procedure. Individuals who are accustomed to developing and testing their ideas in conversation with others will miss the feedback provided in groups (Sewart, 1982).

Difficulties also arise because of the characteristics of those most likely to choose distance education programs. Many are likely to be part-time students, adults with family and job commitments which may conflict with the demands of study. They may be returning to learning after a number of years and may lack both confidence and study skills (Sewart, 1983).
Drop-out

It can be assumed that most educators will measure their success in terms of the number of students who complete a course with a relatively high level of mastery. Beyond that they would probably like to see some expression of personal satisfaction on the part of their students. Finally they would like learning to become an important and continuing part of their students' lives. When students drop out of courses in significantly large numbers, most educators will want to examine the design of their programs to determine if the needs of their students are being met.

It is difficult to decide what constitutes an acceptable level of drop-out. A review of research on drop-out in colleges and universities in the United States showed that on average, 30% of the students who enrolled for undergraduate degrees failed to complete them (Pantages & Creedon, 1978). Six out of every ten students who enrolled in a college or university could be expected to drop-out during their four-year program. Of these six, one would eventually graduate from the same college and two others would enrol in other institutions and obtain their degrees there.

Pantages and Creedon (1978) identified a number of factors which related to student drop-out. High school
grade point average is highly correlated with success at college or university. Inability to persevere, unrewarding experiences with the peer group, lack of clear educational or vocational goals, poor study habits and financial problems were also related to drop-out.

In his review of the literature on drop-out Tinto (1975) argued that drop-out could be most easily explained by examining the level of integration of the student into the social and academic systems of college. Academic integration involved grades, intellectual development, perception of faculty concern for teaching and student development, and informal contacts with faculty concerning academic, intellectual and career matters. Social integration involved extra curricular activities, peer group relationships and informal interactions with faculty.

Tinto found that students who dropped-out, that is who withdrew voluntarily as opposed to being forced to leave as a result of poor academic performance, tended overall to be of higher aptitude and intellectual development than those who persisted. He suggests that some studies may not have differentiated between voluntary and forced withdrawal of students, a fact which may have affected the high negative correlations found between the measured ability of students and
drop-out. Pascarella and Terenzini (1979) followed up on Tinto's research with a study which found that students would persist even when there was poor integration into one system if there was high integration into the other system. Of course too much social interaction may result in academic dismissal but this is not the same as drop-out involving voluntary withdrawal. Such research confirms the importance of the social system to students. Even when students are gathered together at a central location there may be difficulty as a result of poor social integration. In distance education programs where opportunities for interaction with others who are enrolled in the course are limited or non-existent, students usually must do without the support of a social system which is related to their educational activities.

Drop-out in distance education. The drop-out rate in distance education courses in the past has been a source of frustration for educators. It is generally agreed to average about 50% (Graham, 1984) although there are wide variations in the rate of attrition which may be influenced by the characteristics of those who enrol, the design of the program and the nature of the subject matter.

McKenzie and Christensen (1971) described private correspondence schools with a drop-out rate of 70% in
the United States and up to 90% in Japan. One should note that these correspondence schools were entirely print-based with the only form of communication occurring by letter.

The Open University has been much more successful. About 55% of the students who enrol are expected to complete a degree (Keegan, 1980). The drop-out rate per course averages around 21% (Kennedy & Powell, 1976).

The NKI School in Norway which provides technical and vocational degrees has figures which show that out of the contingent of students who enrolled in 1972-73, 84.8% had discontinued their studies after two and a half years, 12.2% had completed their program, and 3.0% were still active (Rekkedal, 1983).

The Fernuniversitat (Distance University) in Germany does not give data on course performance. Students must complete two courses a year, a fairly heavy load for an individual who has other responsibilities. Almost 50% of their students fail to complete their first year (Millard, 1982).

Calculating drop-out rates. Comparisons between the drop-out rates at different institutions are difficult to make since a variety of methods are used to calculate drop-out. The correspondence schools in the United States based their rate on the number of
students who registered but did not complete a course.

At the Open University students are given a trial period of two and a half months to try out their first course before they finally register (Keegan, 1980). They have an opportunity to decide whether they can manage the academic level before they finally register, pay the full tuition and are officially listed in Open University statistics. About 25% of those who begin fail to complete their registration which means that some of those who might otherwise have appeared in the drop-out statistics do not.

A study by Woodley and Parlett (1983) noted that Athabasca University in Alberta uses the term "wastage" which includes both those who drop-out and those who fail to pass their courses. Their wastage rate is 71% of the students who register. This drops to 42% if the base is taken to be those students who submitted the first assignment.

The Open Learning Institute in British Columbia quoted a 32% wastage rate for the summer semester of 1982. This figure is based only on those students who completed their first assignment (Woodley & Parlett, 1983). The argument for using only those students who completed the first assignment is that often students who have registered for a course never actually begin. Instead they find other courses which are better suited
to their requirements or they choose activities other than learning to fill their time. However it can also be argued that students who pay fees and who fail to withdraw and seek refunds began with some initial commitment to the course but lost their motivation early on. Baath (1982) notes that strategies aimed at getting students started should be incorporated into distance education programs. In any case there is usually no way of determining whether students who register but who never send in their first assignments fail to do so because they have found other activities or because there is something about the study situation which discourages them. For the purposes of this study any student who registered but who failed to complete the course and receive a final mark was deemed a drop-out.

Causes of drop-out in distance education. Questionnaires aimed at pinpointing the causes of drop-out have identified a number of factors which deter students from completing courses. Complaints about isolation and lack of contact with other students occur regularly.

The majority of students who dropped out of a third year math course at the Open University gave job or domestic pressures as the reason for failing to complete the course (Phythian & Clements, 1983).
However a free response section which was not analysed indicated there were additional reasons in many cases. Many of the students reported that they found it difficult to deal with a sense of being alone and on their own. They commented on the lack of other students in their area who were taking the course. Some mentioned that after three to five years of part-time study their energy level had waned. Others complained about the increased difficulty of the third level course. The authors suggested that because the reasons for dropping out are usually fairly complex, multiple choice questionnaires may often fail to accurately portray the reasons for failing to continue with a course.

At the NKI School in Norway, a preliminary questionnaire indicated that external factors such as lack of time due to family or job requirements were the primary reasons for dropping out. However more probing questionnaires and interviews suggested that there were usually study related problems as well (Rekkedal, 1983).

In another study of distance education students in Britain, problems cited were inadequate time, difficulty with the multi-disciplinary perspectives of their courses, isolation, lack of motivation and anxiety and uncertainty regarding their learning
abilities (Brookfield, 1982).

Woodley and Parlett (1983) in their review of drop-out in the Open University suggested that course completion depends on the balance between a number of factors which push the student towards his goal or pull him away. Push factors might include the need for a degree in order to get a promotion; wanting to finish something that has been started; a strong interest in the subject matter; or an encouraging spouse. Pull factors would include wanting to spend more time with the family; finding the course difficult; dislike of the course tutor; and the availability of a similar course in a classroom situation where interaction with other students was possible.

They noted in their review:

What the university seems to require is a set of initiatives which are relatively cheap, practical and humanitarian and which are aimed at improving the ratio of "push" to "pull" factors for its students. (p.23)

Many of the factors that contribute to drop-out in distance education programs also affect students who are learning in a more traditional setting. However there are major differences. A distance education student is usually an adult who is studying on a part-time basis and who often has other commitments which may take priority over study. A student who is involved in earning educational credits through
classroom education is more likely to be full-time learner whose primary occupation in life is learning. There is little that the distance educator can do to change this situation. Another major difference between students learning in a group at a central location and those who are involved in distance education is the social system. Students who attend classes usually have an opportunity to meet other students. Students who study independently at home, usually do not. This does not mean that the students' needs for interpersonal interaction will always be met in the classroom setting. Tinto's (1975) research suggests that this not always the case. However students who do attend an institution have opportunities for affiliation which are often non-existent or very limited for distance education students. This is an area which can be addressed by educators who are developing distance education programs.

Preventing drop-out in distance education. While researchers at the Open University may not be satisfied with their completion rate, this institution has been among the most successful in limiting drop-out. A number of distance educators believe that providing students with opportunities for interaction may be one key to such success (Daniel & Marquis, 1980; Keegan,
1980). The Open University spends roughly a quarter of the total budget on student support services which are designed to combat the feelings of isolation which may be experienced by distance education students (MacKenzie, Postgate, & Scupham, 1975). These services include the operation of some 250 local study centres where students can meet with the tutor individually or in small group discussion. As well, week-long residential sessions are held at local universities every summer. Summer school provides more than academic benefits such as libraries, laboratories and tutoring. Sir Walter Perry, the first vice-chancellor of the Open University, noted that perhaps the greatest benefit is that the summer schools enable students to get to know each other and to exchange views and experiences (Perry, 1975).

In the future the amount of face-to-face tutorial support available to an individual student at the Open University is expected to decrease. Sewart (1983) pointed-out that in post foundation courses there were, on average, only two students per study centre. It was too costly to provide a tutor for each course at each study centre. In the less settled areas the study centre might be too far away for easy access in any case. To deal with this problem the Open University has been providing tutorial support by telephone on a
one-to-one basis and through conference calls (Robinson, 1981). Both tutorials at the study centres and the telephone sessions are optional.

The Open University is not the only distance education institution to use the telephone as a means of providing support to students. Since 1972 the correspondence branch of Queen's University in Ontario has dealt with student problems via the telephone (Orton, 1978). Originally both individual and conference telephone calls were used. Although the conference calls were popular with the students they were discontinued because of the expense. In addition to the cost of a telephone bridge to link a group of students with the instructor, there were higher long distance charges since the students spent more time on the telephone, listening as the questions of other students were discussed. Graham (1984) reported that roughly 30 universities and colleges in Canada have used teleconferencing in distance education programs and that the attrition rate in distance education appears to be lower when teleconferencing is used.

Another solution to the problem of isolation and declining tutorial support has been to encourage students to form independent study groups and to support each other (Whitlock, 1975). Bailey (1983) noted that negative feelings which are often a prelude
to dropping out in a distance learning situation, may be expressed or assuaged in such groups. Students in such independent study groups were able to discuss assignments and examination outcomes. They often contacted each other outside of these meetings to discuss course material.

Self-help groups are also used at University of New England in Australia. At the beginning of a course, a list of nearby students is sent to each student. Where possible the local discussion groups are led by graduates of the university living in that area (Mills, 1978).

Although there appear to be no formal studies available in which the effect of self-help groups is isolated and evaluated statistically, educators who have been involved in courses where such groups existed found them of benefit. They provided an opportunity for the students to affiliate with others.

**Need for Affiliation**

Studies of distance education programs show that while many students choose this form of study because they prefer to work independently, others enroll simply because it is the only educational opportunity available to them (Holmberg, 1981). They might prefer to learn in a more interactive situation but they do
A personality construct which might be used to differentiate between those who prefer independent study and those who would rather study in the company of other people is "need for affiliation".

Origins. This construct was originally conceived by Henry Murray who viewed personality as a hierarchy or configuration of basic psychogenic needs or motives (Atkinson & Birch, 1978). In 1938 Murray published a taxonomy which included twenty basic human needs. One of these was need for affiliation.

Murray originally measured need for affiliation with a projective test, the Thematic Apperception Test (TAT). More recently researchers have developed self-report personality scales which appear to provide a more reliable measure of this construct (Clarke, 1973).

Measuring need for affiliation. A review of a variety of instruments which measure need for affiliation indicated Jackson's Personality Research Form was among the most accurate (Hogan, 1978; Clarke, 1973). Clarke reported that there appeared to be a strong relationship between high scores on the scales and behaviors which indicated high need for affiliation and need for achievement. The correlation coefficients between the scale and various behavioral ratings ranged
from +0.40 to +0.80 (Jackson, 1974).

The individual who receives a high score on a test of need for affiliation has been described as a person who "enjoys being with friends and people in general; accepts people readily, makes efforts to win friendships and maintain associations with people" (Jackson, 1974, p.6).

Research relating to need for affiliation. Although there are not a great number of studies examining this construct, research does indicate that a high score on a need for affiliation scale correlates with behaviors directed towards interaction with other people.

In one study subjects high in need for affiliation were found to make more non-business phone calls and communicated more often with work associates (Lansing & Henes, 1959). Males and females who were high in need for affiliation were more likely to avoid making potentially divisive comments to others working on the same group task (Exline, 1962). Need for affiliation was positively correlated with the number of conversations and letters instigated by an individual (McAdams & Constantian, 1983).

Need for affiliation in educational settings. The results of a number of studies suggest that people who are high in need for affiliation perform better and
are happier in educational settings in which there are opportunities for personal interaction.

One of the earliest studies was undertaken by French and Chadwick (1956) who found that when affiliation feedback was given, subjects who were high in need for affiliation were found to learn more. McKeachie (1961) noted that although such data as scores on college entrance exams and high school grades do correlate very highly with college success, such correlations seldom exceed 0.5. McKeachie suggested that it would be useful to find other predictive measures which would explain the remaining variance in college grades. In his opinion individual differences including need for affiliation would account in some significant measure for success in higher education. He also suggested that factors such as need for affiliation be used to examine why particular teaching methods are more effective with some students than others. In a group of studies he found that men high in need for affiliation obtained better grades in classes in which the instructors provided many affiliative cues. Cues included such behaviors as calling the students by name and taking a personal interest in students. Women whether high or low in need for affiliation received better grades relatively in the classes with instructors who gave many
affiliation cues. In the course which provided the highest number of affiliation cues, students high in need for affiliation were more satisfied than students who were rated low in need for affiliation. Although he does not study the value of the affiliation cues received from other students, McKeachie notes that this might be a fruitful area for study. In three other studies he found that men high in need for affiliation made relatively better grades in classes characterized by a high level of affiliation cues, whereas men low in need for affiliation did relatively better in classes low in affiliation cues. The results for women were not consistent (McKeachie, Lin, Milholland & Isaacson, 1966). This fits in with findings in the earlier study which suggests that women, regardless of how they rate in need for affiliation, tend to do well in situations where there are many affiliation cues.

Pascal (1973) found that when students were given a choice of independent study, lecture-discussion or lecture only, those who chose the independent study option indicated a significantly greater need for autonomy than those who chose the other two options. Although these students were not measured for need for affiliation 90% of those in the lecture-discussion group noted as a benefit that the group discussion format allowed them an opportunity to interact with
their peers and the instructor.

Chan (1975) found that secondary school students who were high in need for affiliation preferred group learning situations while students low in need for affiliation stated a preference for independent learning. When an independent study situation was followed by a group learning situation, students high in need for affiliation showed significantly more improvement in the number of literary hypotheses generated than students low in need for affiliation.

Schneider & Green (1977) found that the need for affiliation conflicted with the "need for achievement" in academic situations. Students with high scores on scales measuring both needs obtained lower grades than students who were high in need for achievement but low in need for affiliation.

One study (Lefcourt, Martin & Saleh, 1984) showed a high negative correlation between need for affiliation and "need for autonomy". This raises the possibility that students who are higher in need for affiliation may be lower in need for autonomy and may find it difficult to study at home.

The evidence suggests that for some people the opportunity to interact with others is important in educational settings. It may be assumed that students who are high in need for affiliation will usually be
able to satisfy that need in the classroom. Even when the instructor is not perceived as being warm or highly expressive students will find ways to interact, either through questions to the instructor or through interactions with other students. Such opportunities are limited in distance education and may be a contributing factor when students drop out.

Distance education can make learning opportunities available to individuals who have not been able to attend classes at existing institutions. As the demand for lifelong learning increases these individuals may form a large part of the student body at existing institutions. However components may need to be added to distance education programs which allow students to choose learning activities which meet their individual needs. Developing the right mixture of opportunities for interaction and independence is one of the challenges ahead for educators.
CHAPTER III
OBJECTIVES OF THE STUDY AND HYPOTHESES

Objectives of the Study

The review of research literature indicated that student-to-student interaction would be beneficial to some learners. One means of providing such opportunities in an area such as British Columbia where individual learners may be some distance apart is to allow students to communicate with each other over the telephone.

The objectives of this study are first, to determine whether students can benefit from opportunities to interact with each other via the telephone and second, to examine whether the personality construct need for affiliation is associated with students who benefit from such interaction.

Hypotheses

The research hypotheses stated in the null form are: (1) the drop-out rate would not differ between a group of students provided with opportunities for affiliation with other students and a group which was not; (2) measures of satisfaction would not differ between a group of students provided with opportunities
for affiliation with other students and a group which was not; (3) there would be no difference in the performance of a group of students who were provided with opportunities for affiliation and a group which was not; and (4) the personality construct need for affiliation would not be correlated with student drop-out, student satisfaction or student achievement.
CHAPTER IV
DESIGN AND METHODOLOGY OF THE STUDY

Research Design

The Subjects. The 29 participants in the study were students who were registered for credit in a North Island Community College distance education course in developmental psychology. These students were selected because the course instructor was willing to involve a treatment group in telephone conferences and to check the results of such a treatment. A letter was sent out with course materials asking the students to volunteer for the study by filling out the initial questionnaire. Thirty-two students volunteered. Each student was randomly assigned to either the treatment or control group. Data on one of the students in the treatment group were not used as she was not available at the time of the conference calls. Data on two of the students in the control group were not used as they were acquainted with other students in the course (not members of the control group) and they were therefore considered not to be isolated from other students.

The course, "From Conception to Age Six", included television programs provided through satellite broadcasts and a print component consisting of a manual and texts. The Knowledge Network broadcasts were hosted by the faculty member in charge of the course, Dr. Michael Catchpole.
The course credit would be transferable to all B.C. universities and community colleges. It could also be used as part of a program to gain accreditation as a licensed day care worker. Thus some students were enrolled in the course in order to advance their careers or gain degrees. Others simply wanted to obtain information about child development and used the assignments and final credit as a means to obtain feedback on their own personal learning.

The students were similar in many ways to the general population of distance learners in British Columbia. They were adults who had finished their full-time basic education. They had undertaken part-time study for a variety of reasons ranging from general interest to career advancement. However this sample did differ from the general population of distance learners in this province in two respects. All of the students in the sample were female and since the programs were broadcast in the afternoon it could be assumed that most of the students would not have had day-time jobs.

All the distance education students enrolled in this course were encouraged to call their instructor collect if they encountered problems with their studies during the three and a half month term. As well Dr. Catchpole tried to telephone each of his students
around the times that major assignments were due to discuss their progress with them. Each student received about four calls from the instructor.

**Control.** Students in the control group received calls from the instructor on an individual basis. He discussed their assignments and progress in the course with them.

**Treatment.** The treatment consisted of varying the format of the telephone calls to include other students. Two of the calls which students in the treatment group received from Dr. Catchpole were conference calls lasting for about 15 minutes. The students were able to talk not only to the instructor but also to three or four other students at the same time. The students were clustered according to region for the conference calls. There were four clusters. In one cluster there were two students who lived in the same city. Otherwise the students lived from about 15 to 100 miles apart.

The first telephone call was initiated by Dr. Catchpole on February 16, 1984, roughly a month after the course began. Dr. Catchpole began by asking each student to tell the group a little about herself and her reasons for taking the course. They discussed discipline in the home, the topic of a recent course broadcast, and talked about whether the students had
found the most recent assignment difficult. At the end of the call the students were asked if they wished to give their telephone numbers out to the rest of the group. All agreed to do this. Dr. Catchpole encouraged the students to call each other if they were in close enough proximity. The call was followed up with a mailed notice from the instructor providing the telephone numbers of other students in the group.

In the second call on March 29, the students discussed a course topic and talked about how they were coping with the course assignments. Dr. Catchpole drew attention to problems which were common to the group. The students were again encouraged to call each other.

Materials

Initial questionnaire. The initial questionnaire was sent out in January, 1984, the month in which the students registered for the course and began their studies. A copy of the questionnaire appears in Appendix A. The questionnaire was made up of 52 items from three scales from Jackson's Personality Research Form E: affiliation, achievement and autonomy. The scale of most interest in this study was related to need for affiliation. Items from the achievement and autonomy scales were intermixed so that the purpose of the items measuring affiliation would
not be obvious. The scales consisted of statements which the viewers were asked to rate as either true or false.

Because earning the credit might be a motivating factor in itself, students were asked to rate the value of the course credit to their career plans on a scale of one to five.

**Final questionnaire.** The final questionnaire was sent out in June. A copy appears in Appendix B. For this questionnaire a Likert-type scale was developed by this researcher. It was designed to assess student satisfaction with the experience of being a distance education student. Questions were also included as to whether the student had completed the course and if they had not been able to do so, why not; whether they had initiated any contacts with other students; and whether they intended to register for other distance education courses.

Students were asked about their contacts with other students in order to see if members of the treatment group would follow up with other students in their telephone conferencing group. It was also important to know whether members of the control group were indeed isolated as is usually the case in a distance education setting. Students in the control group who knew and interacted with other students in
the course would be eliminated from the study.

**Other Information Obtained.** Information was obtained on each students' previous educational background and marks in the course.

North Island College could not provide information on the degrees which the students had previously earned. However, at the time of registration they had been asked about high school completion and previous institutions at which they had been enrolled. The information was used to rate the students on a scale of 1 to 5 as to their academic backgrounds. Ratings were applied as follows: (1) had not completed high school (2) completed high school (3) completed high school and the previous distance education course offered by Dr. Catchpole (4) completed some other community college or vocational institute courses or (5) completed some university courses.

Some of the students had indicated at the end of June that although they had not completed the course, they intended to do so. A follow-up was made in mid-September 1984 to discover if they had done so.

**Scoring and Item Analysis.** Item analysis using the Laboratory of Education Research Test Analysis Package (LERTAP) (Nelson, 1974) was run on the three personality scales and the Likert-type scale measuring student satisfaction. The Hoyt estimate of reliability
for the scale measuring need for achievement was .74; for need for affiliation, .71; and for need for autonomy, .68. The Hoyt estimate of reliability for the scale measuring satisfaction with a distance education situation was .88. This was deemed satisfactory for research purposes except that the need for autonomy was noted as being a bit lower than one would wish.

Statistical tests.

Statistics were computed with the Statistics Packages in the Social Science (SPSSX) for computers (SPSS, Inc., 1983).

Because of the small size of the sample two non-parametric statistical tests were used.

A chi square test was used to compare the treatment and control groups in terms of drop-out, intention to register for further distance education courses and educational background.

Final marks, scores on the satisfaction scale and the three personality scales were compared using Mann-Whitney U tests.

Correlations were computed on a number of variables using the Pearson product moment coefficient of correlation. This was used because the variables are continuous and sufficient degrees of freedom were obtained. The relationships among the affiliation,
achievement and autonomy scales, scores on the Likert-type scale measuring satisfaction with the distance education situation, final marks, and course completion were examined. Correlations were computed for the whole sample and for the treatment and control groups separately. The objective here was to identify any potential relationships which might exist between the personality construct, need for affiliation, and the outcome measures such as drop-out rate, student satisfaction and student marks.

The mean and median scores of students in this sample on the three personality scales were compared with population norms for females supplied by the test developer (Jackson, 1974). These population norms were developed by testing psychology students at universities in Canada and the United States. Comparisons with a larger population of psychology students might indicate a potential for generalization.
CHAPTER V

RESULTS OF THE EXPERIMENT

Statistical Analysis of Results

Drop-out rate. The first hypothesis was that the drop-out rate would not differ between a group of students provided with opportunities for affiliation and a group which was not.

In the treatment group 2 out of 15 subjects failed to complete the course. In the control group 7 out of 14 students failed to complete the course. All data is contained in Appendix C. A chi square analysis was done on the drop-out data. The chi square was 4.55 with one degree of freedom, significant at the .03 level. Because of the small numbers a Yates correction for continuity was made which lowered the chi square value to 3.00 significant at the .08 level. Strictly speaking, the null hypothesis must be accepted but reservations can be expressed. It appears that there is an effect on the drop-out rate exerted by the provision of affiliation activities, but the effect here falls just short of the significance level usually accepted in social sciences research. Replication of the study with a greater number of participants is indicated by this finding.

Student satisfaction. The second hypothesis, stated in the null form, was that measures of satisfaction would not differ between a group of
students provided with opportunities for affiliation with other students and a group which was not. Scores on a Likert-type scale measuring satisfaction with the distance education situation were compared using a Mann-Whitney U test. The difference between the two groups was not statistically significant (U=81, z=-1.05, p=.29, df=29). Rated satisfaction with the course did correlate positively with course completion, r=.30 with p=.11, df=29, and with student performance, r=.54 with p=.01, df=20.

A question on intention to register for future distance education courses was also intended to be a measure of student satisfaction. There was no statistically significant difference between the responses of the two groups on this question. The hypothesis of no difference must be accepted.

Student achievement. The third hypothesis was that there would be no differences in the performance of a group of students who were provided with opportunities for affiliation and a group which was not. The scores of those students who completed the course were compared using the Mann-Whitney U test. The difference between the two groups was not statistically significant (U=42, z=.28, p=.78, df=20). The seven students in the control group who completed the course had a mean average achievement score that
was two points higher than those in the treatment group. The hypothesis must be accepted.

Need for affiliation. The fourth hypothesis was that the personality construct, need for affiliation, would not be correlated with student drop-out, student satisfaction or student performance as indicated by the students' final marks. Need for affiliation showed a mild negative correlation with student performance when the whole sample was used, with $r = -0.38$ which reached a significance level of $0.10$, $df=20$. The null hypothesis must be accepted.

There was, however an interesting finding which neared statistical significance. When the treatment and control groups were separated and correlations made between the variables, the results were somewhat different. When the treatment group alone was examined, there was a low correlation, $r = -0.11$ with $p = 0.72$, $df=13$. When the control group was examined separately there was a high correlation, $r = -0.70$ with $p = 0.08$, $df=7$. Correlations with student drop-out and satisfaction were not statistically significant.

Students who were high in need for affiliation might have been expected to follow up on the teleconferences with their own telephone calls. None of the students in the treatment group reported having done so.
### TABLE ONE
CORRELATIONS BETWEEN VARIABLES

#### All Subjects

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#### Control Group

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Ach=Score on need for achievement  
Aff=Score on need for affiliation  
Aut=Score on need for autonomy  
Sat=Score on satisfaction scale  
Per=Final mark of student  
CC=Course completion

Note: Although need for affiliation was the principal attribute being studied, need for achievement and autonomy ratings were included in the correlation matrix because they were available.
Factors which might have affected the study. Although the subjects were assigned randomly to the treatment and control groups, a post hoc comparison was made to see if there were any differences between the two groups which might have affected the results of the experiment. There were no significant differences between the two groups in self-rated motivation, previous educational background, or on pre-test scores for need for affiliation, need for achievement and need for autonomy. Both groups were able to interact with the instructor and thus had some opportunity for limited affiliation with him. However only the treatment group had the opportunity for affiliation activities with other students.

Comparison of sample with population norms. Population norms were available for the three scales on which the students were initially measured and were used to compare the sample with a general population of female psychology students. In need for achievement the mean score of the sample group was 9.7 and the median score was 10 which was equivalent to a 50 percentile level using Jackson's norms for women. In need for affiliation the mean score was 9.3, the median 9, equivalent to a 50 percentile level. In need for autonomy the mean score was 6, the median 6, equivalent to the 37 percentile level for the population.
Discussion of Results

Drop-out rate. The difference in the rate of drop-out between the treatment and control groups was dramatic. Only 2 out of the 15 students in the treatment group dropped out while 7 out of 14 students in the control group failed to complete the course. Chi square analysis of the drop-out rate had a significance level of $p=.03$ but with the Yates correction because of the low number of subjects the significance level was .08.

Adding weight to the argument that the treatment had an effect were two informal observations on the part of this researcher. The students appeared to be highly involved in the teleconferences. Many of their comments were addressed to each other rather than to the professor. Another factor which indicated some involvement or commitment to the group was the speed of return of the final questionnaire. The students who returned the final questionnaire most quickly were the completers in the treatment group. The slowest students to return this questionnaire were the drop-outs in the treatment group. They required a number of reminders. This suggested a greater involvement on the part of the treatment group with perhaps more reluctance on the part of those who
dropped out to acknowledge their failure to complete. Both members of the treatment group and members of the control group knew that their answers were related to a study of distance education.

It was not possible to keep an accurate record of the total time spent by the students on the telephone line with the instructor. Students in the treatment group may have logged more minutes on the telephone with the instructor simply because it was a conference call. The conference calls lasted about 15 minutes each while individual calls to students may have finished more quickly.

A common-sense examination of the numbers suggests that there was some difference between the treatment and control groups. Although, after the Yates correction, the level of statistical significance was not as high as one would wish the evidence suggests that the treatment had an effect on the level of drop-out.

**Student satisfaction.** There were no statistically significant differences between the scores of the two groups on the satisfaction scale as might have been expected given the differences in the rate of drop-out. However student satisfaction was highly correlated with the marks obtained and to a lesser extent with course completion. This indicates
that feelings about achievement rather than feelings about the distance education setting were reflected in responses to the satisfaction scale. The students obtained marks from their assignments at a variety of points throughout the course and their final marks were mailed to them at about the same time as the final questionnaire.

A question about intention to register for further distance education courses was also intended as a gauge of satisfaction. The differences between the two groups were not statistically significant in this case either. One could have expected that the control group which had a higher rate of drop-out might have differed from the treatment group on this question in that students who dropped out might not have been as eager to register for another distance education course as those who finished successfully. It is possible that the size of the sample was not large enough to reflect existing differences. As well there may have been personal reasons about which this researcher had no knowledge which might have accounted for the lack of statistically significant differences. It is possible that for the mothers of young children, the topic may have been of such high interest that they enjoyed the experience regardless of whether or not they earned the credit.
Student performance. There were no statistically significant differences between the two groups in the marks as might have been expected given previous research findings. Results may have been influenced by the low numbers of subjects since half of the control group had not completed the course and therefore did not have marks. The fact that the control group mean performance (83.6) was two marks higher than that of treatment group (81.5) may indicate that only the best students in the control group completed the course. However because of the small number of completers in the control group this remains conjecture.

The role of need for affiliation. The most notable correlation relating to need for affiliation involved the students' performance with $r = -0.38$, $p = .10$. This suggests that higher need for affiliation could be related to a lower mark for all students.

When the correlations were made separately for the treatment and control group a more interesting pattern emerged. For the control group there was a correlation of $r = -0.70$, $p = .08$. For the treatment group the correlation between mark and need for affiliation was only $r = -0.11$, $p = .72$. This suggests that the treatment may have moderated the effects of this personality construct in some way. It is possible that when the
students' need for affiliation was met through group telephone calls, this need did not affect performance. However when the students need for affiliation was not met, there was an effect on performance. These findings indicate that need for affiliation may be an important factor in distance education.

There were no requirements for students to work together on course assignments. However one may ask why, if the affiliation opportunities were important to students in the treatment group, they did not call each other after the conference calls. A number of causes can be conjectured. It may have been that their need for affiliation was met through the conference calls which provided them with a sense that there were other students with problems and concerns similar to their own and through additional contacts with the instructor. Also Dr. Catchpole suggests that the cost of long distance phone calls would have been a barrier to his students even though the distances between the students in most cases were not great. As well, few students would have had any information on the value of networking or self-help groups in education and might not have seen this as an accepted practice. In addition, they might have been afraid that helping others might detract from their own achievement. Finally because the students had far less familiilarity
with each other than students meeting in a classroom setting, they may have been too shy to initiate further contacts with each other.

**Generalization of results.** Generalization of results to a larger population of distance learners is limited by the small size of this sample although the students in this study appeared to be very similar to the general population of female psychology students in need for achievement and need for affiliation with somewhat lower autonomy ratings. These similarities increase the potential for generalizing the results of the study to female students enrolled in university level courses. Given that previous research indicated that females regardless of how they scored on a need for affiliation measure responded to affiliative cues, it is probably not possible to generalize the results to males, particularly those in non-university or general interest courses. This series of questions requires further investigation.
CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Distance education is providing new opportunities for learners all over the world. Instead of travelling to an educational institution and attending classes under the direct supervision of an instructor these learners receive educational programs in their home communities through print and postal correspondence, television, radio and satellite broadcasts, and telephone.

Distance education is used for a variety of purposes including the provision of agricultural information to farmers, the enrichment of elementary and secondary school curriculums, and the promotion of social change or community awareness. Many programs are aimed at adults who have completed their early education but who want to study on a part-time basis. Distance education allows them to upgrade or obtain basic skills and knowledge, to keep abreast of changes in their field of work and to pursue interests or hobbies. The majority of post-secondary institutions in British Columbia offer some distance education courses to adult learners who are unable to attend classes on a regular basis.
The principal advantage of distance education is that the individual can choose the time, place and pace of study most appropriate to his needs and personal situation.

There are also disadvantages to distance education. The majority of distance learners are part-time students who must balance the requirements of study with those of family and job. Often there is a significant time lag between the date on which the student sends in an assignment and the date on which he receives it back in the mail with corrections and clarifications. If he has questions, the student usually does not have immediate access to the instructor as he would in a classroom. As well, he lacks the companionship of other students with whom he might explore ideas. A consistent complaint of students in distance education programs has been related to the sense of isolation which they experienced. The lack of opportunity for affiliation appears to be one of the factors which contribute to the high drop-out rate in distance education programs.

Although it is difficult to come up with an average rate of drop-out because of variations in the way such statistics are reported, it would not be unreasonable to suggest that about half of students who enroll in a distance distance education course will
fail to complete it.

Institutions which make opportunities for interaction available to students appear to have lower drop-out rates, although factors other than affiliation may be involved.

Lack of social contact may be more of a problem for some students than for others. While some individuals may thrive in an independent study situation in which they can direct their own learning without having to consider the needs of a class, others will find that the lack of opportunities for interaction and discussion is detrimental to their motivation to continue and to succeed.

Need for affiliation is a personality construct which describes the strength of an individual's desire to establish and maintain interpersonal relationships. It was originally advanced by Henry Murray in 1938. People high in need for affiliation have been found to instigate more communications with others. Research also suggests that students who are high in need for affiliation obtain better marks and are more satisfied in academic situations where there are more affiliative cues and more opportunities for personal interaction.

This study was designed to explore whether student-to-student interaction through small group telephone conferences would help to reduce drop-out and
increase satisfaction in distance education programs and if so, whether the personality construct need for affiliation could be used to predict those students who would most benefit from opportunities for affiliation.

Telephone interaction was chosen because it seemed most appropriate to the British Columbia setting in which learners are scattered over a wide geographic area and thus might find it difficult to interact by actually meeting together. Student-to-student interaction was chosen as a focus because this kind of interaction was most likely to be absent in a distance education setting.

The research hypotheses stated in the null form were: (1) the drop-out rate would not differ between a group of students provided with opportunities for affiliation and a group which was not; (2) measures of satisfaction would not differ between a group of students provided with opportunities for affiliation and a group which was not; (3) there would be no difference in the performance of a group of students who were provided with opportunities for affiliation and a group which was not; (4) the personality construct need for affiliation would not be correlated with student drop-out, student satisfaction or student achievement.
Twenty-nine students who were enrolled in a distance education course on child development offered by North Island College were the subjects of the study.

The initial questionnaire contained three scales from Jackson's Personality Research Form. Need for affiliation was the scale of most interest in this study. Two other scales relating to need for achievement and need for autonomy were included so that the purpose of the study would not be obvious to the subjects. There was also a question designed to measure the level of initial motivation to complete the course.

The final questionnaire contained a Likert-type scale designed to measure satisfaction with the course. There were also questions relating to whether the students completed the course; whether they had instigated any communications with other students; and whether they intended to register for further distance education courses.

At a later date course completions were checked and information was collected on the students' marks and educational background.

All students in the course were encouraged to call the instructor whenever they had a question about the course. As well the instructor tried to call each student several times during the three and a half month
term. For members of the treatment group two of those calls were small group telephone conference calls involving three or four other students usually from the same region. The students were introduced to each other. They discussed a recent course topic and were asked if they had encountered any difficulties. The instructor drew attention to any common problems and encouraged the students to telephone each other. The call was followed up with a note from the instructor containing the telephone numbers of the other students involved in that conference call. Members of the control group received only individual telephone calls from the instructor.

Although 32 students originally volunteered for the study, data on one of the students in the treatment group had to be eliminated because she was not available at the time of the telephone conference. In the control group, data on two of the students were not used because the final questionnaire revealed that they had been in contact with other students (not members of the control group) and could therefore not be considered to be representative of students in an isolated situation.

The first hypothesis, that the drop-out rate would not differ between a group of students provided with opportunities for affiliation and a group which was
not, was accepted conditionally. Only 2 out of the 15 students in the treatment group dropped out while 7 out of the 14 students in the control group failed to complete the course. The chi square obtained when the drop-out rates between the two groups were compared was 4.55 significant at the p=.03 level. When a Yates correction for continuity of curve was applied because of the small numbers in the sample, the chi square dropped to 3.0 significant at the p=.08 level. Although this is below the level of statistical significance usually sought in the social sciences, an examination of the actual numbers and an informal look at the way the groups functioned suggests that the treatment had an effect on the level of drop-out.

The second hypothesis, that measures of satisfaction would not differ between a group of students provided with opportunities for affiliation and a group which were not, was also accepted. There were no statistically significant differences between the two groups as to level of satisfaction as measured by the Likert-type scale. Scores on the scale were highly correlated with the students' marks, r=.54, p=.01 and to a lesser extent with course completion. This suggests that the student's self-rated level of satisfaction with the distance education experience was influenced by their marks which they obtained about the
time the final questionnaire was sent out.

This third hypothesis was that there would be no difference in the performance of a group of students who were provided with opportunities for affiliation and a group which were not. There were no statistically significant differences between the two groups as to marks obtained. This may have been due to differential attrition and other factors. The null hypothesis was accepted.

The fourth hypothesis was that the personality construct, need for affiliation, would not be correlated with student drop-out, student satisfaction or student performance. The null hypothesis was accepted. When need for affiliation was correlated with student performance the result was $r = -0.38$, $p = 0.10$. When correlations were run separately for the treatment and control groups it appeared that much of the strength of the relationship resulted from data from students in the control group where $r = -0.70$, $p = 0.08$. In the treatment group $r = -0.11$, $p = 0.72$. This gave rise to the speculation that the effects of the personality construct, need for affiliation, on performance might be moderated by the type of treatment investigated here. When a student's need for affiliation was met through opportunities for interaction with others, this construct did not affect performance. When the need
was not met, there was a negative relationship with performance. Further studies of this phenomenon would be necessary to confirm this pattern.

Conclusions

Examination of the results suggests that the treatment may have had a positive effect on the drop-out rate. Only 2 of the 15 students in the treatment group compared to 7 out of 14 students in the control group dropped out. The initial chi square obtained was 4.55 significant at the p=.03 level. With the Yates correction for continuity made because of the small size of the group, a chi square of 3.0 with a significance level of p=.08 was obtained.

It was not surprising that the scores of the students on a Likert-type scale designed to measure satisfaction with the distance education situation actually seemed to reflect satisfaction with the mark obtained in the course. The final questionnaire was sent out at about the same time as the course marks. However one would have expected that the control group which had a 50 per cent drop-out rate would have been less willing to register for further distance education courses.

The correlations between need for affiliation and the students' performance suggest that the personality
construct played a role in student success. Higher need for affiliation appears to be related to lower achievement. Additionally there seems to have been an interaction between this construct and the treatment. When the treatment and control groups were examined separately the correlation between student performance and need for affiliation was significant for the control group but not for the treatment group. This suggests that the treatment may have moderated the affects of the construct on student performance.

Although the subjects appeared to be similar to the general population of female psychology students in North America, the size of the sample and the fact that it consisted entirely of women allows generalization of results only to other female distance learners in British Columbia.

Recommendations

The results show that the treatment group was different from the control group in rate of drop-out just short of statistical significance. It seems probable that results from a larger group could have yielded statistically significant differences. With the evidence gathered, it appears that opportunities for interaction among students should be included in the design of distance education programs where
possible.

Small group telephone conferences could be provided even when students are isolated geographically. If such group telephone calls are to provide maximum benefits to the students, some prior information on group discussion and networking might be useful. Provision of the telephone numbers of all students in a geographical area might facilitate interaction. In some courses it might be possible to ask students to form self-help groups.

It would be worthwhile to replicate the study with a larger number of students to confirm the trends apparent in this study. Further exploration of the role that need for affiliation and other personality constructs play in distance education, and of programs and activities which might moderate their effects would be beneficial.
Bibliography


Exline, R. (1962). Need affiliation and initial communication behavior in problem solving groups characterized by low interpersonal visibility. Psychological Reports, 10, 79-89.


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Whitlock, K. (1975) Study groups: Some follow-up proposals. Teaching at a Distance, 3, 44-47.


Appendix A:

Initial Questionnaire
This questionnaire is designed to measure student likes and dislikes in a particular area. There is also a question related to why you are taking the course. Your participation in this study is voluntary and will not affect your grade, but it will assist us in obtaining information about designing effective distance education courses.

Returning this completed questionnaire will indicate your agreement to participate in the study. You will receive a further questionnaire at the end of the course. Once the study is completed, those who participated will be sent information on the findings of this research project. All information will be treated strictly confidentially and names will not be used.

This questionnaire will take about 15 minutes to complete. Please return it with your other course materials to Dr. Michael Catchpole.

NAME ______________________________ PHONE ____________________________

ADDRESS ____________________________________________________________________

Part A

INSTRUCTIONS
For some of you, the major reason for taking this course is your personal interest in the subject area. For others, obtaining the course credit may be more important. Read the statement which follows. Then circle the number on a scale of one to five which best reflects your position in regard to that statement.

Obtaining the credit for this course is very important to my future career plans.

Strongly 1 2 3 4 5 Strongly

Disagree Agree
Part B

INSTRUCTIONS

In this part of the questionnaire you will find a series of statements, some of which you might use to describe yourself or your attitudes. Read each statement and decide whether or not it applies to you. If you agree with a statement, circle the T, which indicates that the statement is generally true for you. If you disagree with a statement, circle the F, indicating that the statement is generally false for you. Answer every statement either true or false, even if you are not completely sure of your answer. This is not a test. This portion of the questionnaire measures attitudes.

Example When I get to a hard place in my work I usually stop and go back to it later.

If your first reaction to the statement was that it generally described you, you would circle the T.

1. I choose hobbies that I can share with other people. T F
2. People should be more involved with their work. T F
3. I find that I can think better when I have the advice of others. T F
4. I am quite independent of the people I know. T F
5. I seldom set standards which are difficult for me to reach. T F
6. I delight in feeling unattached. T F
7. I enjoy difficult work. T F
8. I seldom put out extra effort to make friends. T F
9. Family obligations make me feel important. T F
10. My life is full of interesting activities. T F
11. I have rarely done extra studying in connection with my work. T F
12. I go out of my way to meet people. T F
13. People who try to regulate my conduct with rules are a bother. T F
14. I will not be satisfied until I am the best in my field of work. T F
15. I don't really have fun at large parties. T F
16. I would feel lost and lonely roaming around the world alone. T F
17. I try to work just hard enough to get by. T F
18. People consider me to be quite friendly. T F
19. I could live alone and enjoy it. T F
20. I would work just as hard whether or not I had to earn a living. T F
21. I would not be very good at a job which required me to meet people all day long. T F
22. I respect rules because they guide me. T  F
23. I get along with people at parties quite well. T  F
24. I do not let my work get in the way of what I really want to do. T  F
25. I truly enjoy myself at social functions. T  F
26. I would not mind living in a very lonely place. T  F
27. My goal is to do at least a little bit more than anyone else has done before. T  F
28. Things with sugar in them usually taste sweet to me. T  F
29. When I see someone I know from a distance, I don't go out of my way to say hello. T  F
30. Adventures where I am on my own are a little frightening. T  F
31. In my work I seldom do more than is necessary. T  F
32. I spend a lot of time visiting friends. T  F
33. I would like to be alone and my own boss. T  F
34. I often set goals that are very difficult to reach. T  F
35. Sometimes I have to make a real effort to be sociable. T  F
36. I like to do whatever is proper. T  F
37. People seldom think of me as a hard worker. T  F
38. My friendships are many. T  F
39. I would like to have a job in which I didn't have to answer to anyone. T  F
40. My daily life includes many activities I dislike. T  F
41. As a child I worked a long time for some of the things I earned. T  F
42. I don't spend much of my time talking with people I see every day. T  F
43. I usually try to share my problems with someone who can help me. T  F
44. It doesn't really matter to me whether or not I become one of the best in my field. T  F
45. I trust my friends completely. T  F
46. I am quite independent of the opinions of others. T  F
47. I don't mind working while other people are having fun. T  F
48. Often I would rather be alone than with a group of friends. T  F
49. I don't want to be away from my family too much. T  F
50. I am not really very certain what I want to do or how to go about doing it. T  F
51. I try to be in the company of friends as much as possible. T  F
52. My greatest desire is to be independent and free. T  F
Appendix B:

Final Questionnaire
**QUESTIONNAIRE**

**NAME**

**ADDRESS**

A. Please read the following statements. Then check the box which best represents your reaction to each. This is not a course evaluation. The question is designed to improve our understanding of your experience as a distance education student.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<td>1. I felt confident that I was preparing my assignments as required.</td>
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<td>2. I believe I would have done better in a classroom setting.</td>
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<td>3. There was not enough student participation.</td>
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<td>6. I found the course materials difficult to understand.</td>
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<td>7. I learned a lot from this course.</td>
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<td>8. I felt somewhat isolated during my studies.</td>
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<td>9. I found it difficult to stay motivated.</td>
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<td>10. I would take another course that was taught this way.</td>
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B. 1. Were you able to complete the course? Yes ___ No ___

2. If you were not able to complete the course, what was the main reason?


C. 1. Were you in contact with any other students in your course during your studies? Yes ___ No ___

If you answered "yes" to the previous question, please continue with questions 2, 3, and 4. If you answered "no" simply move on to section D.

2. The students with whom I was in contact were people with whom I
   i) was acquainted previously ___
   ii) became acquainted with during organized course activities ___
   iii) became acquainted with during the course through my own activities ___

Please describe. ________________________________________

3. Estimate the number of telephone calls you initiated to other students. (In order to avoid having one call reported by both of the people involved, please provide an estimate of only those calls in which you made the initial contact.)
   i) 0 ___
   ii) 1 to 3 ___
   iii) 4 to 6 ___
   iv) 7 to 9 ___
   v) 10 or more ___

4. Estimate the number of meetings which you arranged with other students. (Again, in order to avoid having one meeting reported by everyone involved in it, please provide an estimate of only those meetings in which initiated the contact.)
   i) 0 ___
   ii) 1 to 3 ___
   iii) 4 to 6 ___
   iv) 7 to 9 ___
   v) 10 or more ___

D. 1. Do you intend to register for another distance education course in the future? Yes ___ No ___

2. Why? ________________________________________
If you have any comments about the experience of being a distance education student, please note them in the space provided below.
Appendix C:
Data Collected From Subjects
DATA COLLECTED FROM SUBJECTS

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Sub=Subject  
Ach=Score on need for achievement scale  
Aff=Score on need for affiliation scale  
Aut=Score on need for autonomy scale  
Sat=Score on satisfaction scale  
CC=Course completion  
EB=Educational background  
Per=Performance as measured by mark in course  
FR=Intention to register for further courses