AN INVESTIGATION OF POSSIBLE RELATIONSHIPS BETWEEN TELECOURSE STUDENT SUCCESS AND STUDENT SUPPORT SERVICES

by

Mary L. Schumaker

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Approved by

Keith C. Wright

Dissertation Adviser

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at the University of North Carolina at Greensboro.

Dissertation Adviser _____

Committee Members _____

_____

_____

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ABSTRACT

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The study analyzed the sociodemographic characteristics of the telecourse students in the North Carolina Community College System and compared these findings with the results from a 1984 study. In addition, the study analyzed possible relationships between student support services and student completion rates and measures of student success.

A total of 25 administrators, 71 faculty, and 741 students responded to the three interrelated surveys. Additional data on enrollment statistics was supplied by the Department of Community Colleges. Nominal data was reported as percentages while Pearson correlations were calculated for interval data.

Although the results for part one showed many similarities with the 1984 study, the present sample is younger, has more female students, is working less, and has a higher level of education.

The analysis of student support services and student completion rates and measures of success revealed no significant relationships in the patterns of interaction. The study showed discrepancies when the reported rates of contact were compared between students, instructors, and administrators. As a result, the subsequent data analysis may be flawed if support services were not supplied as reported.

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CHAPTER I

INTRODUCTION

Background

Although one might argue that distance education has been an established fact since the epistles of St. Paul, it has taken the technology of the twentieth century to foster its international recognition as a reliable mode of instruction.

In underdeveloped countries, distance education technologies offer an opportunity to reach a population that is too large and geographically scattered to service by conventional school systems as well as those individuals whose economic status precludes further educational advancement. In developed nations, distance education also provides a means of providing educational opportunities to students in new subjects when the supply of teachers has not kept pace with the growth of knowledge (Verduin & Clark, 1991).

In the nineteenth century, distance education, in the form of printed correspondence courses, was created to give individuals who could not otherwise attend a college or university an opportunity to study. Such courses provided the means whereby adults could partake of educational

opportunities for personal fulfillment or as a means of improving social and economic status. As various countries experimented with the concept and as technological advances produced a variety of approaches, selected educational opportunities were opened to many who were far removed from educational institutions by either distance or economics (Harry and Rumble, 1982).

By far the most extensive single user of telecourses has been the Open University of Great Britain. Bates (1983, p. 57) reported that this institution had over 80,000 students viewing 1500 telecourses each year and over 40,000 graduates since its inception in 1969. Enrollment is open to any British resident over the age of 20 without regard to previous educational experience. Courses, study guides, ancillary materials and tests are specially prepared by the full-time faculty of the Open University. Some courses include a compulsory group class and face-to-face tutoring is available at regional centers for larger courses. Each student is assigned a correspondence tutor to grade tests, answer questions, and provide encouragement (Harry and Rumble, 1982, p. 180-181).

The opportunities provided by this form of instruction are important for a variety of reasons. In countries such as Germany and Sweden, where as late as the middle of the twentieth century even bank clerks were required to meet university entrance qualifications, fewer and fewer students could afford the necessary education. In Great Britain, trade associations and

professional bodies have made extensive use of distance education to educate their members. Australia and New Zealand have found this form of study to be ideal where distances between settlers and educational institutions make residential study impractical. In the United States, distance education provides students with a means of continuing their education while remaining in the workforce (Watts, 1983).

Finally, a number of political units in Africa, India, and South America have found that various forms of distance education, while expensive and requiring state support, nevertheless are the only means of extending educational opportunities to a large as well as culturally and geographically diverse population (Watts, 1983).

The use of television in the United States as an educational tool can be traced to the decision by the FCC in 1952 to grant 242 communities access to a channel for noncommercial educational use. Through the additional assistance of the Educational Television and Radio Center in Ann Arbor, Michigan, and a grant from the Fund for Adult Education, a network of educational stations began to acquire and distribute a variety of programs (Knowles, 1977).

These first attempts at televised instruction emphasized a static, didactic approach that was little removed from a classroom lecture. As access to televised material grew and more sophisticated production techniques were employed, the public began to expect programming that utilized the

unique capabilities of television to compress time and space and to present material not readily available to the general public (Dirr, 1983).

In 1982, the Public Broadcasting Service began national distribution of telecourse material through its Adult Learning Service. Funded by a grant from the Annenberg Foundation, such programming extended educational opportunities to a new population of learners (Parnell, 1982).

This growth in the use of distance technology and of the two-year community college has exhibited an almost synergistic relationship. Joint research in 1985 by the Corporation for Public Broadcasting and the U.S. Department of Education found community colleges to be the primary users of audio, computer, and video technologies among post-secondary institutions in the United States. By 1987, the Adult Learning Service reported offering telecourses through more than 300 public television stations to 1203 colleges (Levine, 1987).

Distance education has evolved from a process relying on printed correspondence courses distributed by surface mail to the current technologies that offer the opportunity to utilize telecommunications systems. These systems can provide instruction by a select group of teachers to a population larger than could be accomplished by conventional means. Such distance education programs may utilize audio components of several types, computer networks , interactive and non-interactive video conferencing, or commercial

broadcasts. The latter type forms the basis for the material discussed in this study.

The process of distance education will continue to evolve as technologies change. As history has shown, emerging technologies bring with them unique applications and problems. As a result, older technologies do not simply disappear, but continue to coexist with newer technologies (Verduin & Clark, 1991).

Purpose of the Study

In the fall of 1990, the North Carolina Department of Community Colleges began offering financial incentives to their institutions for the use of telecourses as a means of increasing accessibility and improving the economics of instruction. These telecourses consist of broadcasts of several series of programs covering a variety of topics by the North Carolina Center for Public Television. Under this plan, the Department of Community Colleges pays a state-wide licensing fee for a group of mutually agreed upon telecourses and the individual colleges pay a much smaller fee for each student. Students view the broadcasts in their homes or record them for later use. As a result, the number of institutions offering such courses increased from eight in 1989, when no incentives were offered, to 40 in 1992 (North Carolina Department of Community Colleges, 1992).

This study examines the possibility that selected support services offer opportunities for two way communication between the student and the

organization, represented by the instructor and the telecourse administrator, that can impact the results of the instructional process. In addition, this study sociodemographically describes the student respondents.

Because it would be impossible to assign students or faculty to exclusive groups based on the multiple elements involved, this study focuses on the impact of the support services taken as a whole and is descriptive rather than prescriptive.

Need for Study

Unfortunately, there have been few large scale studies on the relationship between institutional support services for students and student success in telecourses. There is even less information on the types of institutional support services currently in place in the North Carolina Community College System. In addition, the most recently published national sociodemographic data on telecourse students was produced in 1984 (Brey and Grisby, 1984). This lack of information makes it difficult for educational planners at both the state and local levels to effectively design support services, to train state and local personnel, or to assess existing programs and make recommendations concerning future practices.

If the results of the proposed study are incorporated into planning of future telecourse programming, several results might be projected.

First, state and local telecourse coordinators might improve program effectiveness by integrating the results of the proposed study into the overall planning of telecourse programming.

Secondly, the results of the study may provide a basis for future training programs for state and local professionals and staff associated with telecourse implementation.

A further contribution might be in the area of adult education. By establishing a link between student learning and institutional support it may be possible to establish guidelines for improving the effectiveness of both.

Definitions:

Attrition: Failure to complete a telecourse by fulfilling all course requirements.

Completion: Fulfillment of all requirements related to a telecourse.

Distance education: A form of study that is not conducted under the immediate and continuous supervision of an instructor and in which a physical separation between the student and the instructor is a basic element of the course design. Any elements of a tutorial or of group involvement, while possibly contributing to the success of the program, are ancillary to the predominant form of instruction.

North Carolina Community College System or NCCCS: The 58 institutions administered by the North Carolina Department of Community Colleges and the State Board of Community Colleges. These community colleges, technical

institutes, and technical colleges offer one or two year degree programs as well as certificate and noncredit continuing education programs.

Student success: Defined for this study as an exit score of "C" or better.

Student support services: The operational and logistical services supporting the instructional process. This includes any intentional interaction between the institution and the student as part of the telecourse. Such interactions with students may include but are not limited to orientation sessions, registration and fee payment, assignment to an instructor, tutoring, mandatory and requested site visits, and the scoring of examinations.

Telecourse: An educational unit consisting of multiple programs on a single topic transmitted via television and received by the student in his/her home.

Telecourse Administrator: The individual administratively responsible for telecourse programming at institutions of the NCCCS.

Telecourse Instructor: The individual employed by the sponsoring institution to act as the primary intermediary between the telecourse material and the student.

Telecourse Student: An individual who is registered at one of the institutions in the NCCCS and who is engaged in obtaining course credit by observing educational units transmitted via television and received by the

Limitations

The following limitations were identified for the proposed study:

1. The instructional effectiveness of the telecourse packages is not analyzed.

2. Television as a medium of instruction is not evaluated.

3. Differences in grading practices between instructors or differing subjects is not equalized.

4. The relative merits of specific implementation practices is not evaluated.

5. The proposed study does not attempt to provide prescriptive answers to the research questions.

6. The proposed study reflects the expressed opinions of the telecourse coordinators, instructors, and students at each institution.

7. Levels of student success are not analyzed.

8. No control group exists.

9. Student exit scores are not matched with individual student responses.

Goals of the Study

The primary goal of this study is to determine if a relationship exists between selected student targeted institutionally offered instructional support services and student success in telecourses offered by schools in the North Carolina Community College system. An additional purpose will be to sociodemographically describe the telecourse student respondents.

Research Questions

This study will attempt to accomplish these goals by answering four related research questions:

1. What is the sociodemographic composition of the telecourse student respondents and how does it compare to the most recent national sample?

2. What is the availability of selected support services offered to telecourse students as reported by telecourse administrators, telecourse faculty, and telecourse students?

3. Is there a relationship between these student targeted support services and student completion rates as reported by faculty?

4. Is there a relationship between these student targeted support services and student success rates as reported by faculty?

CHAPTER II

REVIEW OF THE LITERATURE

Background

This chapter will provide an overview of the research literature pertinent to this study. The overview will describe research in postsecondary education that includes television used in education, theories of distance education with primary attention given to theories related to communication and interaction, characteristics of telecourse students, student achievement in telecourse programs, and attrition problems related to telecourses.

Research on distance education through the use of telecourses has focused primarily on comparisons of retention and achievement statistics with site based programs. Although many studies have addressed a variety of questions related to variables affecting participation and continuation in distance education programs, the question of variables accounting for student rates of success or failure have yet to be answered (Coggins, 1988 Wiesner, 1983).

A search of the literature has not revealed any studies attempting to describe or analyze telecourse student support services as indicators of student

interaction with the institution on a statewide basis as a possible mediating influence on completion rates and student exit scores.

Television in Instruction

The use of television as a means of extending educational opportunities is a logical choice. The Carnegie Commission's 1972 report forecast a growth in telecommunications technologies that would profoundly impact instructional technology (Carnegie Commission, 1972). By 1979, most American homes had at least one television set (Meierhenry, 1984), and the Carnegie Commission found that most high school graduates had spent more time watching television than they had spent in the classroom (Carnegie Commission, 1979).

Television as a means of instruction is something of a fledgling enterprise. In fact, the major developments in television as we know it have occurred in the last 50 years. The medium of television owes its existence to the advances made in radio during 1925-1940 and particularly the experiments in television broadcasting conducted during the war years of 1940-1945 which helped to standardize television receivers (Carlson, 1971).

By 1948, the Federal Communications Commission had licensed 100 stations and in 1952 it created the 242 noncommercial stations for educational purposes (Adams, 1979, 16-17).

With this distribution system in place, many colleges and universities in the United States began to use television for instruction. Generous

government and private funding fostered a decade of experimentation. The University of Michigan, Western Reserve University, Pennsylvania State University, and the University of Chicago all began offering telecourses for credit during the 1950s. Of these, the University of Chicago's Chicago TV College was perhaps the best known and most successful. By 1974, at least 400 students had received Associate of Arts degrees entirely through televised study (Zigerell & Chausow, 1974).

Due to political and economic factors, little additional growth or innovative use of instructional television can be documented until the 1970s (Zigerell & Chausow, 1974). During this period, programming on public television stations took on a broader appeal with the creation of such series as The Adams Chronicles and The Ascent of Man.

It was also during this period that several community colleges that are now primary producers of telecourse programming began their initial productions. Chief among these were the Dallas County Community College District, Miami-Dade Community Colleges, and Coast Community College (Purdy, 1983).

The 1979-80 Higher Education Utilization Study sponsored jointly by the Corporation for Public Broadcasting and the National Center for Education Statistics provided an national overview of the use of television in postsecondary education. The study showed that at least 500,00 students were enrolled in more than 6,000 televised courses offered by 3,000 institutions.

Many of these courses were offered on campus via closed circuit systems (Dirr, Katz, and Pedone, 1981).

In 1981, the Public Broadcasting Service began the Adult Learning Service (now the Adult Learning Satellite Service) to offer telecourses through its national affiliates. By the end of the 1985-86 academic year, one-third of all colleges surveyed were offering complete courses via television (Levine, 1987).

Research related to television in instruction has primarily consisted of attempts to prove or disprove its efficacy as an instructional tool. It is possible that no other medium of instruction has been as extensively researched as television. Thousands of research projects have been conducted with at least 500 of these designed to compare televised instruction with conventional classroom instruction (Whittington, 1987).

In literature reviews conducted by Allen (1960), Schramm (1962), Reid and MacLennan (1967), Chu and Schramm (1968), and most recently by Whittington (1987), all concluded that there was no significant difference in the quality of the learning achieved by the two methods.

In an analysis of some of these studies, the "no significant difference" was found to be the result of faulty research methodology since the lack of significance could be the result of the nature of instruction. Wood and Wylie (1977) noted that it is not possible to isolate the numerous variables in the education process or to develop matched groups for testing all

hypothesis. By attempting to exercise scientific control by manipulating variables, the instructional process is altered in ways that cannot be explained by current theory (Wood & Wylie, 1977).

Even without this difference, television presents a powerful tool in reaching adult audiences. Because it is broadcast via national television networks, it is possible to expose many adults, even those not enrolled in the telecourse, to a broad range of ideas and information (Carlson, 1971, p. 27). With the availability of such a pervasive medium, Wood and Wylie sought to construct a new set of questions concerning television in instruction.

> ...it has become clear that there is no longer any reason to raise the question whether instructional television can serve as an efficient tool of learning. This is not to say that it always does. But the evidence is now overwhelming that it can, and, under favorable circumstances does. ...The questions worth asking are no longer whether students learn from it, but rather, (1) does the situation call for it? and (2) how, in the given situation, can it be used effectively? (Wood & Wylie, 1977, p. 331)

Theories of Distance Education

The theoretical basis of distance education is fragmented and general with no single theory attempting to define the totality of the distance education process. The theories that do exist are primarily descriptive of current practice and are often characterized by the purpose or the method of instruction.

Although there is much disagreement among the researchers and educational philosophers, they seem to be roughly divided between theories

of autonomy and independence and theories of interaction and communication (Holmberg, Keegan, Sewart, 1983). The latter group finds interactions essential to the development and application of cognitive skills, the acquisition of necessary study habits, as well as the stimulation necessary to maintain motivation. The former group supports distance education based on the independence of the learner supported by the selection of appropriate materials.

As is true of any set of theories devised to describe a series of complex processes, there will usually be extremes at each end of the spectrum. This is certainly true concerning the theories based on autonomy and independence.

In the early days of distance education via instructional television, some researchers suggested that primary control of education could be removed from the institution and the instructor and placed in the hands of the course developer. Problems arising from low test scores or excessive dropout rates could be traced to deficiencies in the course package. Even the missing element of personal interaction was to be built into this package by way of comments and self help tests and guides. Such programs represented the ultimate in expectations for personal autonomy.

Delling, a German distance educator, typifies several aspects of this most extreme position. He describes distance education as an artificial situation in which a signal carrier such as radio or television is terminated by the learner at one end and by the institution at the other. Minimal emphasis

is placed on the teacher and the services of the institution, while maximum emphasis is placed on the student. The student is expected to act in a completely autonomous and independent manner with little or no contact with the institution (Delling, 1976). In an overview of distance education, Keegan (1986) asserts that Delling places distance education outside of generally accepted educational theory by completely disregarding the role of the teacher.

At the other extreme of the autonomy issue were those researchers who saw distance education as a means to attain a social ideal. No individual would be denied educational or enrichment opportunities based on location, economics, or personal goals. Institutional considerations such as semesters or courses of study were seen as less important than personal fulfillment.

Wedemeyer's theories, based on the philosophy of Carl Rogers, represents this most liberal, and perhaps the most confusing, of the distance education theories based on autonomy and independence. Learners would be free to develop their interests and follow a schedule completely free of any constraints imposed by the institution. Goals would be personal issues as would be the attainment of those goals and the evaluation of the level of achievement (Wedemeyer, 1981).

The confusing aspects of Wedemeyer's theories stem from the interchangeable use of the terms "distance education" and "independent learning". Although he describes independent learning as a process bereft of

outside direction or control, he describes distance education as a combination of the teacher, the learner, a communication system, and course content. The distinction between the two terms is made more understandable by separating the learning and the teaching process. Wedemeyer (1981) realized that independent learning, while descriptive of a particular kind of nontraditional learning, should not be misconstrued to mean independence from guidance and influence as part of the process of distance education.

Moore (1973) represents a middle ground between Delling and Wedemeyer. Moore defines programs in terms of degrees of autonomy and distance, based on possibilities for interaction, and holds that too much autonomy may be as damaging as too little. Since learners vary in their ability to accept independence, programs should be matched with students based on the levels of autonomy required to reach educational goals.

Distance education theories representing communication and interaction are typified by the research of Holmberg, Baath, and Sewart. Although their theories do not reveal the extremes of the previously cited researchers, their work is nonetheless diverse in their interpretation of the range of elements defined as communication.

During the 1970s, Baath researched the various forms of two-way communication in distance education. The application of these forms of communication or interaction extended from the possibility of interaction within computerized material by means of self tests to the role of the

instructor in personal communication by telephone, mail, computer, or individual meetings (Baath, 1979).

Holmberg has coined the phrase "guided didactic conversation" to describe his theory of the relationship between the learner and the institution. The conversation may be implied, as in textual material written in a conversational tone, or it may be real, as in written correspondence or personal and telephone conversations. This guided conversation serves to clarify the content of the program for the student as well as provide feedback to the organization through the instructor (Holmberg, 1989).

Sewart differentiates his approach from others by an even greater reliance on intermediaries to facilitate the incorporation of the subject matter into the framework of the learner's life. This support is seen as particularly critical for new students who have not previously participated in distance education (Sewart, 1983).

Although many researchers have addressed the issue of independence in learning, it has often been in terms that were synonymous with learner autonomy over the instructional process (Brookfield, 1983; Moore, 1983). Chene (1983) suggests that such autonomy is an illusion since the learner has little or no influence over such aspects as course or curriculum content.

A model developed by Myra Baynton and D. R. Garrison (1987) attempts to further refine and define the interaction process and serves as a unifying factor. The educational transaction is often described as the

interaction between the teacher, the student, and the content. The Baynton and Garrison model adds the concept of control and emphasizes the process of communication in attaining this control.

The Baynton and Garrison model describes control as extending beyond the definitions usually attached to terms such as "autonomy" or "independence". Control implies the ability to make choices as well as the ability to change the course of events and is a dynamic balance to be achieved between the three elements of independence, power (proficiency), and support through the process of communication between the teacher and the student (Baynton & Garrison, 1987).

The first element of control, independence, implies the freedom to make choices. In the context of the educational process, independence is a philosophical element that assumes that students will make choices based on their individually perceived needs, and that the alternatives for those choices have been communicated to them. In order to be independent, the learner must possess the capability as well as the opportunity to make choices. This means having the emotional, psychological, and intellectual ability to be an independent learner (Baynton & Garrison,1987).

Power or proficiency, the second element of control, is the psychological capacity to assume the responsibility for learning. Power assumes the intellectual ability, skills, and motivation to be an independent learner. The power to assume control of the learning process is influenced by

the learner's attitude, level of maturity, cognitive style, and motivations (Baynton & Garrison,1987).

Support, the final building block of control, refers to the resources available to the learner. Such support may include such physical resources as instructors, courses, materials, tutors, facilities, and equipment. It may also include emotional resources such as psychological support contributed by family, friends, and instructors. In the context of this study, support may also refer to institutional efforts to enhance faculty performance, and to provide flexibility in the instructional process (Baynton & Garrison,1987).

Control for any particular aspect of the instructional process does not reside in one participant. For each unique situation, the degree of control residing in each participant will vary. Control may be absolute for the learner who independently select goals and has the intellectual, psychological, emotional, and physical resources to meet those goals. Less sophisticated learners may relinquish some independence but gain support. These students would actually increase educational control over time through an increase ability to meet the established goals (Baynton & Garrison,1987).

A student's perception of control may vary from the student's actual capabilities and resources to assume such control. Communication between students and instructor can make students aware of weaknesses that threaten the learning process (Baynton & Garrison,1987).

Characteristics of Distance Education

Distance education is usually characterized by the physical separation between the student and the teacher. Such physical separation is often seen in traditional instructional settings and tends to become more pronounced as the student progresses from secondary to post-secondary instruction and completes more assignments outside the classroom. The difference lies in the design of an instructional system in which one of the basic tenants is one of separation (Rumble, 1986).

In general, distance education can be defined by the following elements:

1. it is a form of mass communication
2. it provides a means of instruction when existing institutions are over crowded.
3. it allows students to learn at their own pace and in a place of their choosing
4. it requires students to develop independent learning skills
5. it distances the instructor from the student (Holmberg, 1977)

Distance education is typically described by the technologies used to produce and/or distribute the information. Modern technology provides educators with a variety of methods of transmitting information without face to face contact. These include such telecommunications tools as radio, telephone, satellite, cable and microwave transmission, audiotape and

videotape in delivered hardcopy format, and computer assisted learning (Rumble, 1986)

Control of this process at the institutional level is divided among the participants (Baynton & Garrison,1987). Several factors are usually under institutional control including selection of faculty, number of students assigned to each instructor, support services and personnel available to instructors, and the presence or absence of faculty development programs designed to focus on distance education (Holmberg, 1977).

The instructor usually has some leeway in the site based operations of the telecourse. Such variables can include the number of required or optional campus meetings or whether such meetings occur at all, the frequency of faculty initiated contact with the student, the provision of instructor designed course related materials, and the extent and the type of response generated by examinations or other work completed by students (Sewart, 1983).

Likewise, distance education provides learners with the means to structure a learning environment and schedule that may be physically independent of any recognized learning facility. Telecourse students may control the timing of their viewing of televised course offerings particularly if they possess the means to record the programs. Through decisions made concerning their level of participation, students can also control the number of student initiated contacts with the instructor and, in some cases, the contact with the institution (Levine, 1987).

Theories of Student Participation in Telecourse Programs

Research in the area of student participation in distance education at the postsecondary level owes much to the field of adult education. Although technology creates the possibility for expanding learning opportunities for adults, it does not guarantee participation (Tate & Kressel,1983).

> "Like most continuing education programs, telecourses and other forms of technology-based instruction tend to attract those who are already inclined to pursue additional education--those with previous educational experience who can afford to pay." (Tate & Kressel,1983, p. 95)

Much research into institutional opportunities to effect the participation and outcome of distance education programs have been narrowly defined in terms of participation theory. In large part, such research examines possible means of identifying and locating students who might initiate participation and those social, psychological, and economic reasons that students voice when they cease that participation (Long, 1987).

The principle investigators have used both sociological as well as psychological approaches to develop theories primarily related to participation in educational programs and secondarily related to student continuation and success in these programs.

Both McClosky (1968) and Boshier (1973) assigned possible variables to groupings labeled "external" and "internal". External variables included

instructor teaching styles, time frame for course completion, institutional funding, curriculum content, tutor responses, and socioeconomic status.

Studies of internal variables have primarily focused on learning styles and motivation. Anthony Bates' (1983) longitudinal study of student learning through televised programs of the Open University typifies this research. Bates explored the need to define student learning (internal) within the context of the instructional environment (external). He found that

> ...the extent to which students will learn from television depends entirely on the conditions surrounding the use of television. What might work under laboratory conditions will be very different if a student has to view at 6.00 am, is behind with his assignment, and does not understand something in the course that is not covered by the programme. Context then is the key to understanding students' learning from television, in any circumstances, but nowhere is this more crucial than in the field of adult education (Bates, 1983, p. 57).

Telecourse Student Sociodemographics

Many studies of telecourse students in the United States have focused on sociodemographic descriptions of telecourse students. Several of the more comprehensive studies include the work of Gross (1972), Astin (1975), Julian (1982), and Feasley (1983). A European study by Rekkedal (1982) confirmed the universality of these findings. In the most recent and comprehensive study of American telecourse students, Brey and Grigsby (1984) surveyed 8,000 students in 42 colleges and universities. Their findings helped to delineate a profile of these students that includes:

1. More than two-thirds of these students were female

2. The majority of the students (77%) were 23-39 years old and not traditional college age.

3. About 20% were new college students taking a course for the first time.

4. At least 40% were enrolled in ten or more credit hours.

5. Forty percent enrolled in the telecourse because a site based section conflicted with their work schedule.

6. This was the first telecourse for almost two-thirds of the students.

Interactions Between Telecourse Students and Their Institutions

Distance education may be at once more liberating and restrictive than conventional education. While it frees the student from the need to advance through a subject at a pace designated by the mean of the group's abilities, it also forces the student to learn without the supportive atmosphere of the group. Without the continual comparison of abilities with reference to the group, the individual must rely on other sources to provide those benchmarks that indicate success in the learning process. This need may be partially fulfilled by the instructional package. Such packages may use references to other materials, end of session notes, and questions with references to review sections. Although such materials may include many aspects of the subject that the developers have determined require additional support, they cannot anticipate every eventuality. It is the unforeseen question or problem that requires an intermediary (Holmberg, 1977).

Because student learning within the context of the telecourse is isolated from the contact found in a traditional classroom, these students are also isolated from the institutional support systems available to traditional students. Additional support systems and feedback can be devised to assist these students. Such assistance can range from written comments on tests and other assignments to actual counseling concerning family or work related problems (Lewis, 1983).

The instructor and other institutional representatives provide mediation between the educational system or institution and the student. As such, these intermediaries intercede when the demands of the subject or the procedures of the institution require clarification. The needs of the student may go far beyond the subject matter to be learned or administrative concerns. At times the intermediaries must become aware of a student's health, social responsibilities, and economic problems in order to provide appropriate information and advice (Sewart,Keegan, and Holmberg, 1983).

> In a system of teaching at a distance we normally find the separation of the source of academic knowledge and the advisory/support role, the former being contained in the teaching package. The separation of these activities does not, in itself, create problems. Problems will however arise if the two elements are not balanced; if the teaching package predominates to the virtual or complete exclusion of the intermediary role...(Sewart,Keegan, and Holmberg, 1983, p. 52)

Several researchers have investigated the isolating elements of distance education and the need for institutional support.

A study by Murgatroyd reported by Robinson in Distance Teaching for Higher and Adult Education outlines perceptions of problem areas, in order of importance, as expressed by 1,000 distance education students in the United Kingdom: time constraints, inability to concentrate, family obligations, time management, lack of motivation, inadequate study skills, lack of resources, anxiety, and feelings of isolation (Robinson,1981).

In practice, the amount of instructor intervention can be based on the expressed needs of the students. For instance, Holmberg reports that Beijer's 1972 study found that the desire for oral components decreased with the age of the student (Holmberg, 1977, p. 48). As to the necessity of such interactions, Holmberg reports that "No conclusive proof has been established either to prove the necessity of face-to-face elements or to reject them as conventional embellishments" (Holmberg, 1977, p. 48).

In a 1990 study of a cross-section of students who had enrolled in an Annenberg/CPB telecourse, 44% said that communication with faculty was "very important" while 35% indicated this course component was "somewhat important" (Hezel & Dirr, 1990).

Several researchers have investigated singular interventions as a mediating influence on student behavior. Chu and Schramm (1975) found that neither instructor feedback nor the timing of the instructor feedback had a significant effect on student retention. Although Coldeway (1982) found that such feedback produced only modest results, he did note that telephone

contact was most often used and most often found to be effective. In two studies that may say more about student motivation than institutional intervention, Purdy (1978) and Giltrow and Duby (1978) found that students who returned a postcard questionnaire had higher completion rates.

In a more recent study that proposed to establish relationships between student support services and subsequent completion and grades, the researcher did find significant correlations on several aggregate factors (Allen, 1990). Although the Allen study looks primarily at sociodemographic correlations with completion and success rates, it also analyzes the relationship between several possible student and institution interactions and subsequent completion rates and student success. The study surveyed 172 students enrolled in nine telecourses supervised by six instructors that were preselected by the Director of Nontraditional Studies based on their willingness to participate.

Although the Allen research did not find statistically significant relationships between the interaction variables related to instructor and student interaction and student completion, it did indicate a significant relationship between a group of 17 variables and student completion and success. Since the data for the 17 variables was not reported independently, it is not possible to determine if the combination of these variables resulted in the positive correlation.

Attrition in Telecourses

The student attrition rate has long been a measure of effectiveness for educational programs of all types. Since students in distance education programs may participate without declaring a final goal or the period of time their studies will continue, the very definition of attrition is called into question. Unless a student's intentions are known, it becomes impossible to say whether non-completion signifies an interruption of the process or failure (Holmberg, 1977, Parnell, 1982).

Studies of attrition in distance education have been given considerable attention in the last thirty years. This is partly due to a perceived need to prove the effectiveness of the process and partly as a means of designing improved educational programs. The majority of this research has focused on student sociodemographics, socioeconomic factors, academic predictors, and motivational elements. In reviews of more than a hundred such studies, Pantages and Creedon (1978) found the issues related to student attrition were too complex and inconclusive to be directly applicable toward any general theory.

In general, existing research on attrition has supplied information concerning who is likely to leave the programs but has done little to provide clues to methods of retaining these students. Although several researchers including Anderson and Darkenwald (1979), Boshier (1973), and Tinto (1975) have investigated several aspects of the attrition problem, at present there is no conceptual model or theory that has predictive validity.

In an analysis of the research, Garrison points out that attempts to develop a theory of attrition in distance education suffer from a lack of information as well as methodological deficiencies. These problems include a preponderance of sociodemographic studies, the lack of sustained research which investigates the complex issues of human interaction, as well as attempts to force research in distance education into the mold of existing theories and models (Garrison, 1987).

Instead of dwelling on attempts to define and measure attrition, Coldeway (1982) has suggested that research should focus on identification of student needs and measures of student success and satisfaction.

Along these lines, Holmberg (1977; 1986) has concentrated research on describing those factors that support student motivation and learning. Based in large part on his theory of guided didactic conversation, his teaching theory reflects the importance of the communication process in distance education. Elements of this teaching theory include the need to make the study relevant to the student's needs, to create feelings of rapport between the student and the institution, to facilitate access to the course content, to engage the learner in activities and discussions, and to develop real and simulated communication between the instructor and the student and within the course package (Holmberg, 1977; 1986).

For many years educational experts propounded the hypothesis that distance education could not retain sufficient students because it was missing

the social and intellectual interaction necessary to the learning process. In fact, many attempts at distance education have been accompanied by attrition rates many times higher than is found in conventional education. Only research conducted on Annenberg supported telecourses found retention rates for selected campuses to be higher than comparable campus taught courses (LaRose, 1986).

The Open University in the United Kingdom has shown continued success in the area of student retention. Instead of the predicted attrition rate of 90%, "...up to sixty percent of the finally registered students are graduating..." (Sewart,Keegan, and Holmberg, 1983, p. 52). Although this accounting left an attrition rate of 40%, the researchers found that a significant number of the dropouts were due to such unavoidable causes as death, relocation, and changes in domestic status.

Although the teaching package used by the Open University is a much copied and extensively researched, Sewart suggests that the package alone does not totally account for the success of the operation (Sewart,Keegan, and Holmberg, 1983, p. 53).

A comparison with another distance education program, the Fernuniversitat in Hagen, will illustrate this point. Although the two programs are not sociodemographically identical, they are similar in size and scope. Several researchers have shown that telecourse students at both universities report their courses to be as difficult as site based programs and

that telecourse student performance is generally comparable. The major difference, student achievement prior to entering the program, should favor the German system. Despite their advanced skills, the retention rate for the German students was not superior to those of the Open University (Munshi, 1980).

CHAPTER III

METHODOLOGY

Background

Although the literature has not produced a conceptual model or theory that provides absolute predictors of student completion of telecourses or student success, it has produced a wealth of material related to motivational, sociodemographic and socioeconomic factors. Rather than retrace this ground, this study provides a description of the telecourse student respondents and concentrates on selected elements that may reflect student needs to maintain the communication process as suggested by Coldeway (1982) and Holmberg (1977).

A study by Lewis (1983) of 70 institutions and organizations offering telecourses resulted in a listing of 36 support services that were typically offered. Those student support services that offered the greatest opportunities for interaction between the institution and the student or the instructor and the student were selected as variables.

Sample

Packets containing surveys for 40 telecourse administrators, 95 instructors, and 1735 students were mailed to each of the 40 community

colleges offering telecourses in the Fall and Winter quarters of 1992-1993. Returns consisted of surveys from 25 (62.50%) telecourse administrators , 71 (74.74%) telecourse instructors, and 741 (42.70%) telecourse students. Participants were self selected by their willingness to return the surveys. Even though the students were not selected as participants, a random sample cannot be assumed. As Tuckman (1988) reports, the fact of their enrollment produces a sample that is not homogeneous.

Developing the Surveys

Three separate but interrelated surveys using multiple choice items were developed based on the proposed research questions. The machine readable instruments were then designed using Bubble Publishing software from Scanning Dynamics Incorporated. These surveys utilized numeric responses for quantitative information as well as anchored response scales and space for appropriate written responses to qualitative questions.

The survey questions were designed to provide information on student sociodemographics, availability of specific student support services, and the relationship of those support services to student completion rates, and student success as measured by a grade of "C" or better. Parts of the surveys were designed to gather data for continuing operations of the North Carolina Department of Community Colleges. In order to insure maximum

participation through the cooperation of the Department of Community Colleges, questions were formatted to correspond with reporting categories and ranges in use at that agency. Items used for this study in the student, instructor, and administrator surveys consisted of 15, 8, and 9 questions respectively.

The surveys were pilot tested with the members of the Statewide Instructional Telecourse Task Force of the North Carolina Department of Community Colleges. The members included telecourse administrators, personnel of the North Carolina Department of Community Colleges, and representatives of the North Carolina Center for Public Telecommunications. All of these individuals have worked closely with telecourse implementation in the North Carolina Community College system. In addition, the survey questions were reviewed by representatives of Statistical Consulting Center of the University of North Carolina at Greensboro.

Administering the Surveys

The surveys were distributed to each Telecourse Administrator by a representative of the Department of Community Colleges. Telecourse Administrators distributed the instruments to the Telecourse Instructors at their institutions. An instruction sheet accompanying the surveys asked instructors to supply each student with one Telecourse Student Survey to be completed during the time of the final course examination. Completed

surveys were collected by the Telecourse Administrators and returned to the Department of Community Colleges to be forwarded to this researcher.

Analyzing the Data

Each survey was optically scanned to create a data file. Additional data was provided by the Department of Community Colleges in the form of a computerized listing of enrollment data for each telecourse for each participating site. University Research Associates of Greensboro, North Carolina created SAS programming and provided the data analysis.

The study is descriptive in that it describes the characteristics and activities of three selected samples and is correlational in that it attempts to determine relationships between these activities.

Because the data includes interval as well as nominal measures, several methods of reporting the results are utilized. Nominal data such as sociodemographic information is descriptively reported as percentages of respondents. Pearson correlation coefficients are calculated for interval data such as number of student contacts whenever responses were mutually exclusive. Since individual scores for each student could not be obtained, the completion groupings were constructed from the enrollment figures supplied by the Department of Community Colleges and the completion rates supplied by the instructors.

CHAPTER IV

DATA ANALYSIS AND RESULTS

Introduction

This chapter presents the descriptive and correlational results of the data analysis. The three samples included 71 telecourse instructors, 25 telecourse administrators, and 741 telecourse students. The samples represent 25 of the 40 community colleges offering telecourses, 86 sections of the 118 telecourse sections offered, and 741 of the 1735 students enrolled in telecourses in the Fall/Winter quarters of 1992-1993.

Sociodemographic data was collected from the student respondents as a means of determining specific characteristics of the sample and of comparing the results with the last national sampling of telecourse students conducted by Brey and Grigsby for the Annenberg/CPB Project in 1984 (Brey and Grigsby, 1984). Although the Annenberg project did not consistently provide gender data for each variable, and although the goal of this study is not a gender comparison, this researcher has provided such data to give a more definitive picture of the telecourse student. No attempt was made to correlate sociodemographic variables with completion rates or student success.

Because all respondents did not reply to all questions and some individuals made multiple responses to individual questions, some

frequencies are not consistent with the sample totals. Missing data and multiple responses are indicated for each set of data.

Survey Results: Sociodemographic Data

Summary

This study compared the sociodemographic characteristics of telecourse student respondents with the most extensive study to date conducted by Brey and Grigsby in 1984. The current study found that the telecourse student sample is different in several specific sociodemographic areas from the 1984 study, but that the current sample is not wholly dissimilar.

The student sample is mostly White, female and married with one or more dependents. By contrast, the sample is younger, has even more female students than in 1984, is working less, and has a higher level of education. The most surprising finding showed that more single males reported dependents than did single females. This study did not attempt to correlate these factors with student completion or success.

Analysis: Sociodemographic Data

The majority of the subjects in this survey were females (Table 1). Of the 720 students responding to the question of gender, the distribution totaled 78.6% female and 21.4% male. This is higher than that found in the Annenberg study where the national telecourse student sample was 68% female and 32% male (Brey & Grigsby, 1984, p. 10). The current data for

female students is also slightly higher than the 1984 data collected for North Carolina which showed a sample that was 73% female and 27% male.

It is not known whether the increase in the number of female telecourse students or the decrease in the number of male students surveyed during this research represents a continuing pattern. Although this data shows a dramatic gender difference in the sample, the statistics for male and female students show a consistent similarity across many of the other sociodemographic variables.

Table 1
Student Gender (N=720)

Gender	Freq.	%	Cumul. Freq.	Cumul. %
Female	566	78.6	566	78.6
Male	154	21.4	720	100.0

When tabulated by age as seen in Table 2, over one-half or 54.3% of the North Carolina telecourse student sample is between the age of 18 and 32 years of age with 30.9% under the age of 25. Although the categories are slightly different, this result shows a younger group than the national sample. Brey and Grigsby found that 23% of their national sample was in the 18-22 year old category, while their North Carolina data for this variable showed approximately 13% in that category (Brey & Grigsby, 1984, p. 10)

Table 2
Student Age (N=722)

Age	Freq.	%	Cumul. Freq.	Cumul. %
-18	1	00.1	1	00.1
18-24	223	30.9	224	31.0
25-31	168	23.3	392	54.3
32-38	176	24.4	568	78.7
38-44	89	12.3	657	91.0
44-50	48	06.6	705	97.6
51-56	11	01.5	716	99.2
57-63	6	00.8	722	100

Of those reporting both gender and age (Table 3), 60% (N=563) of the females and 59.1% (N=154) of the males reported their age as less than 32 years. The Annenberg study tabulated results within age groups and found that the percentage of female telecourse students increased with age. Brey and Grigsby reported that 65% of the 18-21 year old students were women and that 73.9% of the 50 to 59 year old respondents were women (Brey & Grigsby, 1984, p. 10)

Although the ranges in reporting are different for the two studies, similar but not corresponding results are derived from this survey. Of the 18-24 year old respondents, 76% are female, while 73% of the 51-56 year old category are female. Even when the ranges from 51-56 and 57-63 are grouped, we find that the percentage of respondents who are female drops to 65%.

Table 3
Age Cross Tabulated by Gender

Age	Female Freq.	Male Freq.	Female %	Male %
Under 18	1	0	.177	0
18-24	169	52	30.0	34.0
25-31	128	39	23.0	25.0
32-38	141	33	25.0	21.0
38-44	75	14	13.0	9.0
44-50	38	10	6.0	6.5
51-56	8	3	1.4	1.9
57-63	3	3	.532	1.9
Over 63	0	0	0	0
Totals	563	154	99.1	99.3

The ethnic distribution of the telecourse students as shown in Table 4 is primarily White (85.2%) followed by African American (11.8%). These figures are very close to those for North Carolina gathered in 1984. That study found a sample of 88% White and 11% African American. Nationally, the Annenberg study found a total of 84% White and 8% African American (Brey & Grigsby, 1984, p. 11)

Table 4
Student Ethnicity (N=721)

Ethnicity	Freq.	%	Cumul.Freq.	Cumul. %
African Am.	85	11.8	85	11.8
Asian	2	00.3	87	12.1
Hispanic	6	00.8	93	12.9
Native Am.	11	01.5	104	14.4
White	614	85.2	718	99.6
Other	3	00.4	721	100

The distribution by gender in Table 5 shows that 86.2% (N=563) of the females and 81.2% (N=154) of the males are White. Table 5 shows that the gender comparison for African American ethnicity is slightly more dramatic with 10.8% female as compared to 15.6% male. The Annenberg study did not provide data on this combination of variables.

Table 5
Ethnicity Cross Tabulated by Gender

Ethnicity	Female Freq.	Male Freq.	Female %	Male%
African Am.	61	24	10.8	15.6
White	485	125	86.2	81.2
All Others	17	5	3.0	3.2
Totals	563	154	100	100

Table 6 indicates that the number of married telecourse students totaled 55.6% compared to 44.4% who reported single status. These figures are very close to the national figures for 1984 of 54% married and 46% single or divorced as well as the figures for North Carolina of 56% married and 44% single or divorced (Brey & Grigsby, 1984, p. 11)

Table 6
Student Marital Status (N=718)

Status	Freq.	%	Cumul. Freq.	Cumul. %
Single	319	44.4	319	44.4
Married	399	55.6	718	100.0

Table 7 shows that of the 564 female students reporting marital status, 56.6% reported being married as compared 51.9% of the 154 males. The greatest percentage of difference is seen between the number of married and unmarried women where the 13.2% difference is more than three times that of the males at 3.8%. The Annenberg study did not report marital status by gender.

Table 7
Marital Status Cross Tabulated by Gender

Status	Female Freq.	Male Freq.	Female %	Male %
Married	319	80	56.6	51.9
Single	245	74	43.4	48.1
Total	564	154	100	100

As shown in Table 8, the majority of the respondents reported one or more dependents. This was also true of the 1984 study. The findings of 42.4% with no dependents are also similar to those of the Annenberg study which found 45% of the students reporting no dependents (Brey & Grigsby, 1984, p. 11).

Of those reporting gender and marital status as well as numbers of dependents, Table 9 shows that 42.1% (N=562) of the females reported that they were married with one or more dependents while 46.7% (N=135) of the males indicated the same status. A distinct dissimilarity is evident in comparisons of those who reported that they were single with dependents.

Although 15.7% of the females reported single status with dependents, this figure more than doubles for the males at 36.2%. The Annenberg study did not tabulate results by gender across marital status and numbers of dependents.

Table 8
Student's Number of Dependents (N=720)

# Depend.	Freq.	%	Cumul. Freq.	Cumul. %
None	305	42.4	305	42.4
One	134	18.6	439	61.0
Two	166	23.1	605	84.0
Three	69	9.6	674	93.6
Four	33	4.6	707	98.2
Five+	13	1.8	720	100

Table 9
Marital Status and Dependents Cross Tabulated by Gender

Status	Female Freq.	Male Freq.	Female %	Male %
Married/Depend.	237	71	42.1	46.7
Single/Depend.	88	55	15.7	36.2
Married/No Depend.	80	9	14.2	5.9
Single/No Depend.	157	17	27.9	11.2
Totals	562	152	99.9	100

In comparison to both the national and North Carolina samples, the number of students who reported that they were not employed during the period of the telecourse has dropped since the 1984 survey. At that time, 19% nationally and 18% of the telecourse students sampled in North Carolina were unemployed compared to 16.2% reporting in 1992-93 (Table 10). During this same period, the number of students reporting a work week of 40 or

more hours has dropped from 53% nationally and 60% in North Carolina to 52.7% for the current survey. As expected, the differences are found in the numbers of students working less than 40 hours per week. Although the number employed 19 hours or less has remained constant with the 1984 survey, the number employed 20-39 hours per week has risen from 18% nationally and 13% for North Carolina to 22.2% during this reporting period (Brey & Grigsby, 1984, p. 12)

Table 10
Student Employment by Hours (N=712)

# Hours	Freq.	%	Cumul. Freq.	Cumul. %
Not employed	115	16.2	115	16.2
19 or less	64	9.0	179	25.1
20-39	158	22.2	337	47.3
40 or more	375	52.7	712	100

Female telecourse students are more likely to be unemployed than their male counterparts (Table 11). Of the 559 female respondents, 17.7% were unemployed compared to 9.3% (N=151) for the males. More females (32.2%) than males (27.8%) reported a work week of less than 40 hours. The figures for female part-time employment are substantially lower those of the national study which found that 51.8% of the female respondents were employed part-time (Brey & Grigsby, 1984, p. 12). Employment data for North Carolina was not included in the 1984 results.

As shown in Table 12, the majority of the telecourse student sample (77.2%) have had at least some college experience. This figure is substantially higher than the 68% reported in 1984. At the same time, the number of students reporting that they have completed a degree program has dropped from 20% in the national sample in 1984 to 18.7% in 1992-1993 (Brey & Grigsby, 1984, p. 38).

The Annenberg study indicated that the North Carolina sample had the largest percentage of students with only a high school diploma and was the leader in numbers of students with a bachelor's degree or higher (Brey & Grigsby, 1984, p. 12.). While 12% nationally reported that high school was their highest level of education, North Carolina telecourse students in this category totaled 21% in 1984. Nationally, Brey and Grigsby reported that 20% of the telecourse students already held degrees. For that same period, the number of telecourse student respondents in North Carolina with degrees dropped from 30% to the current 18.7% (Brey & Grigsby, 1984, p. 13). The difference is contained in the increased number of students who have attended college but have not completed degrees.

Table 11
Number of Hours Employed Cross Tabulated by Gender

Employment	Female Freq.	Male Freq.	Female %	Male %
Unemployed	99	14	17.7	9.3
Less than 40	180	42	32.2	27.8
40 or more	280	95	50.1	62.9
Totals	559	151	100	100

Table 12
Student Level of Education Prior to Telecourse (N=723)

Level	Freq.	%	Cumul. Freq.	Cumul. %
Less than HS	2	0.3	2	0.3
HS Grad/GED	84	11.6	86	11.9
Some College	558	77.2	644	89.1
Associate	52	7.2	696	96.3
Bachelor	18	2.5	714	98.8
Master	3	0.4	717	99.2
Beyond Master	6	0.8	723	100

A comparison of educational backgrounds by gender in Table 13 shows that 88.3% (N=564) of the respondent females and 87% (N=154) of the males who answered this question have had educational experiences beyond high school. The national survey also reported that the differences between males and females on this variable was negligible (Brey & Grigsby, 1984, p. 43).

Table 13
Level of Education Prior to Telecourse Cross Tabulated by Gender

Education	Female Freq.	Male Freq.	Female %	Male %
Less than HS	2	0	0.3	0
HS Grad/GED	64	20	11.4	13
Some College	436	117	77.3	76
Earned Degree	62	17	11.0	11

Table 14 shows that a majority of the students in this sample (67.3%) had taken a course within the last year. This compares closely with the 69% for the national sample found in the Annenberg study. The figures were much lower for the 1984 North Carolina sample. At the time of the national

survey, only 33% reported attending a school or college within the last year (Brey & Grisby, 1984, p. 38).

Table 14
Years Since Last School Experience (N=719)

Years	Freq.	%	Cumul. Freq.	Cumul. %
Less than 1	484	67.3	484	67.3
1-5	106	14.7	590	82.1
6-10	50	7.0	640	89.0
11-15	31	4.3	671	93.3
16-20	33	4.6	704	97.9
20 or more	15	2.1	719	100

Of the students reporting both gender and elapsed time since a school experience (Table 15), 69.1% (N=553) of the females and 67.6% (N=145) of the males reported that less than one year had passed since they last attended a school or college. The Brey and Grigsby study did not report statistics for these variables.

Table 15
Years Since Last School Experience Cross Tabulated by Gender (N=721)

Years	Female Freq.	Male Freq.	Female %	Male %
1 or less	382	98	69.1	67.6
1-5	81	23	14.6	15.9
6-10	41	9	7.4	6.2
11-15	21	10	3.8	6.9
16-20	28	5	5.1	3.4
Totals	553	145	100	100

Table 16 shows that this was the first telecourse experience for a considerable majority of the students (83.4%), . Although this figure is substantially higher than the 64% recorded for the national sample in 1984, it is lower than the 90% recorded for the North Carolina sample at that time (Brey & Grigsby, 1984, p. 16).

Table 16
Students Participating in First Telecourse

Response	Freq.	%	Cumul. Freq.	Cumul. %
Yes	601	83.4	601	83.4
No	120	16.6	721	100.0

The figures for the cross tabulation by gender closely match the total sample (Table 17). For 83.8% (N=563) of the females and 81.8% (N=154) of the males, this was a new type of educational experience. The data for the national sample was not divided by gender.

Table 17
First Telecourse Experience Cross Tabulated by Gender

Response	Female Freq.	Male Freq.	Female %	Male %
Yes	472	126	83.8	81.8
No	91	28	16.2	18.2
Totals	563	154	100	100

Survey Results: Student Support Services

Summary

This study investigated the prevalence of five institutionally provided services and three instructor provided services. By selecting those support services that offered opportunities for communication with the institution, this study sought to discover whether these elements had a relationship with student completion or student success.

Whenever data was available, responses from administrators, instructors, and students were compared to indicate the consistency of response between the groups of respondents. Although not a primary concern of the study, the presence or absence of agreement between respondents could provide information to inform the outcomes.

The Telecourse Administrator Survey was used to determine the administrators' perception of the frequency of some specific institutionally provided services. These services include office hours when instructors would be available for visits or calls from telecourse students, access to tapes of missed programs, availability of information related to study skills applicable to telecourses, distribution of information related to campus student services, and the recommended frequency of instructor contact with students.

The Telecourse Instructor Survey was used to determine the instructors' perception of the frequency of some specific instructor related

services that could result in contacts with students. Such services include scheduled meetings with groups of students, instructor contacts with students to check on progress, and examinations. A question was also included to determine the type of contact the instructors used most frequently.

The Telecourse Student Survey provided information concerning the students' perceptions concerning their frequency of use of the selected support services.

The tables representing completion rates are based on enrollment data provided by the Department of Community Colleges and the number of students reported by each instructor to have completed each telecourse section. In order to make the data more manageable for purposes of representation, the number of students reported completing from each section is assigned to one of four groups. These groups represent a continuous variable ranging from completion rates of less than 50% to completion rates of 90% or more. The combining of data from all schools also serves to even the effects that the different types of telecourses might exert on the data.

The columns for each set of completion rates show the responses in each completion group in terms of percentage and raw count of respondents that were obtained when the totals for these completion groups were cross tabulated with data on availability and use of student support services as reported by telecourse administrators, telecourse instructors, and telecourse

students. The results are reported as percentages only or percentages accompanied by Pearson correlation coefficients depending upon the type of data collected. Only those frequencies that could be matched with a corresponding completion rate are reported. Missing frequencies are indicated below each table.

The first step was to determine if the selected support services were offered. The data showed that these services were offered at a majority of the schools. Some of the reported frequencies, specifically those related to instructor initiated contact with students, showed discrepancies when compared between administrators, instructors, and students. As a result of these discrepancies, the subsequent data analysis may be invalid if support services were not supplied as reported.

In the analysis relating to possible relationships between selected support services and student completion rates and student success, the bulk of the analysis revealed no patterns of interaction that corresponded to increases or decreases in completion rates or rates of student success.

In one of the two cases where some pattern was possible, the use of mail seemed to be the most effective means of contacting students who were not in either the highest or the lowest completion group in either of the categories of completion. This possibility is very tenuous, however, and is presented with the utmost caution. In addition to the previously noted

limitations of the study, the discrepancies in frequencies reported by administrators, instructors, and students could have affected these results.

No significant correlation could be established between the number of reported office hours and total completion rates, but a negative moderate relationship was noted in the analysis of the number of office hours recommended for instructors by each telecourse administrator and student completion with a grade of "C" or better. This relationship was not found to be significant. A negative relationship would mean that campuses with fewer instructor office hours had more students with higher completion rates. Because the probability is so low and the relationship is negative, an alternate explanation may be that such results actually reflect students' motivation rather than any supposed relationship between the variables.

Analysis: Institutional Completion Rates

Table 18 and Table 19 provide some perspective on the data on completion rates for the selected variables by reporting combined figures for all schools. Only one school reported a completion rate of less than 50% while 3 schools reported that rate when compared with scores of "C" or better.

Table 18 shows that despite a substantial difference between the midranges and the lowest completion rate, the completion rate across schools is fairly consistent in the categories for completion rates of 50% to 89%. Thus, variability between schools based on total completion rates should not have a substantial effect on subsequent data analysis.

The percentages represented in Table 19 display more variability between the midranges and the 90% or greater category, but the differences between the midrange completion rates is still only 4.30%.

Table 18
Completion rates for all schools (N=24)

Group	Freq.	%	Cumul. Freq.	Cumul. %
<50%	1	4.2	1	4.2
50-74%	8	33.3	9	37.5
75-89%	8	33.3	17	70.8
90% +	7	29.2	24	100

Table 19
Completion rates for all schools with a student score of "C" or better (N=24)

Group	Freq.	%	Cumul. Freq.	Cumul. %
<50%	3	13.0	3	13.0
50-74%	9	39.1	12	52.2
75-89%	8	34.8	20	87.0
90% +	3	13.0	23	100

Analysis: Student Access To Tapes Of Missed Programs

Table 20 through Table 23 provide data on the student viewing of missed programs.

Table 20 shows that the majority of administrators perceived that student access to tapes of missed programs was primarily accomplished through viewing of tapes in the campus LRC or library (88%) while Table 21 indicates that students reported that home copied tapes was their primary method of viewing missed programs (46.3%) followed by the LRC or library

(26.3%). The results also show that 40% of the schools had loan copies of tapes but only 8.3% of the students used this service. A total of 12.6% of the responding students reported that they did not watch programs that they missed. Because the 25 administrators and 741 students could mark more than one response, the results tabulate higher than the total sample.

Table 22 and Table 23 show the groupings for the two categories of completion rates and the corresponding methods of viewing missed programs as reported by students. Since students could select more than one choice and the categories are not mutually exclusive, percentages of use are reported.

The viewing site with the correspondingly highest completion rates in both categories (Tables 22 and 23) is at home on recorded tapes followed by the campus LRC or library. The prevalence of home based viewing is consistent with the information reported in Table 21.

While it is not possible to compute a correlation coefficient, the data in Tables 22 and 23 does indicate that students in all completion groups in both categories used their own tapes more than the tapes provided for loan by the college or the tapes available for viewing in the campus LRC or library. As a result, such services would seem to have little effect on student completion rates or student success.

Table 20
How students viewed missed programs as reported by the telecourse administrators (frequencies total more than sample-some respondents selected more than one choice)

Viewing missed programs	Freq.	%
Home copies	14	56.0
Borrowed tapes	10	40.0
LRC/Library	22	88.0
Work site	1	4.0
Public Library	1	4.0
Other	1	4.0

Table 21
How students viewed missed programs as reported by the telecourse students (frequencies total more than sample-some respondents selected more than one choice)

Viewing missed programs	Freq.	%
Home copies	343	46.3
Borrowed tapes	63	8.5
LRC/Library	195	26.3
Work site	7	.9
Public Library	16	2.2
Other	33	4.5
Did not watch	93	12.6

Table 22
Completion rate groupings based on site of student viewing of missed programs as reported by the telecourse students

How Viewed	<50%	50-74%	75-89%	90% +	Totals
Home copies	27/32.53	112/56.57	41/51.90	122/51.69	302
Borrowed tapes	14/16.87	6/ 3.03	4/ 5.06	10/ 4.24	34
LRC/Library	26/31.33	58/29.29	21/26.58	63/26.69	168
Work site	0/00.00	1/ .51	0/00.00	3/ 1.27	4
Public Library	2/ 2.41	5/ 2.53	2/ 2.53	6/ 2.54	15
Other	4/ 4.82	6/ 3.03	2/ 2.53	12/ 5.08	24
Did not watch	9/10.84	27/13.64	15/18.99	30/12.71	81
Totals	82	215	85	246	628

Table 23
"C" or better completion groupings based on site of student viewing of missed programs as reported by telecourse students

How Viewed	<50%	50-74%	75-89%	90% +	Totals
Home copies	41/39.81	113/52.31	33/48.53	109/57.37	296
Borrowed tapes	14/13.59	6/ 2.78	4/ 5.88	5/ 2.63	29
LRC/Library	31/30.10	62/28.70	18/26.47	48/25.26	159
Work site	0/00.00	1/ .46	0/00.00	3/ 1.58	4
Public Library	2/ 1.94	5/ 2.31	2/ 2.94	6/ 3.16	15
Other	4/ 3.88	7/ 3.24	2/ 2.94	10/ 5.26	23
Did not watch	11/10.68	37/17.13	14/20.59	18/ 9.47	80
Totals	103	231	73	199	606

Analysis: Distribution Of Information On Effective Study Habits

Administrators were asked if their institution distributed printed materials to telecourse students describing effective study habits or tips on taking a telecourse. Table 24 shows that the majority of the institutions (79.2%, N=24) distributed such materials. Information from instructors or students was not available to corroborate these responses.

Table 25 and Table 26 represent groupings for both categories of completion rates for all schools based on the availability of information from the school on effective study habits for telecourse students. Both tables show that the information was made available to the majority of students in each completion group in both categories.

Although the completion group of less than 50% in both categories did have information distributed to them, it only accounts for a single response in each case. Of more interest is the indication of slightly higher distribution rates in the 75% to 90% or more categories. This difference in the total

completion category may indicate that students find such information helpful, but it may also indicate better course management, or some other factor. The small difference in the "C" or better category tends to offset this effect for this category since information was not distributed to 33.33% in the 90% or more group.

Table 24
Distribution of information on effective study habits as reported by the telecourse administrators (N=24)

Distribution	Freq.	%	Cumul Freq.	Cumul. %
Yes	19	79.2	19	79.2
No	3	12.5	22	91.7
Do not know	2	8.3	24	100

Table 25
Completion rate groupings based on distribution of information concerning effective study habits as reported by the telecourse administrators (N=23)

Group	Distributed	Not distributed	Unknown	Totals
<50%	1/100	0/00.00	0/00.00	1
50-74%	5/62.50	1/12.50	2/25.00	8
75-89%	6/85.71	1/14.29	0/00.00	7
90% +	6/85.71	1/14.29	0/00.00	7
Totals	18	3	2	23

Table 26
"C" or better completion rate groupings based on distribution of information concerning effective study habits as reported by the Telecourse Administrator (N=22)

Group	Distributed	Not distributed	Unknown
<50%	100	00.00	00.00
50-74%	66.67	11.11	22.22
75-89%	85.71	14.29	00.00
90% +	66.67	33.33	00.00

Analysis: Distribution of Information on Student Services

Campus related services could offer opportunities for interaction between the student and the institution. Although the distribution of information does not suppose the use of such information, campus based students could possibly learn of these services by their physical proximity to them while telecourse students might not have such opportunities.

Administrators were asked if telecourse students received printed materials describing such services. Table 27 shows that the majority of the administrators responded in the negative or did not know if such materials were distributed leaving 45.8% offering this service. Information from instructors or students was not available to corroborate these responses.

Table 28 and Table 29 show groupings based on the two categories of completion rates for distribution of information to telecourse students concerning availability of student services. Although Table 28 indicates a higher percentage of distribution in the higher completion rate groups, it also shows that an equally high percentage of campuses with a 90% or higher completion rate did not distribute information. Table 29 shows that the "C" or better completion rate groups also show a that high percentage (66.66%) that reported completion rates of 90% or more did not distribute information. There is not a discernable pattern in either table that would point to a relationship between the availability of information on student services and total completion rates or exit scores.

Table 27
Distribution of information on student services as reported by the telecourse administrators

Distribution	Freq.	%	Cumul Freq.	Cumul. %
Yes	11	45.8	11	45.8
No	7	29.2	18	75.0
Do not know	6	25.0	24	100

Table 28
Completion rate groupings based on distribution of information on availability of student services as reported by the telecourse administrator (N=23)

Group	Distributed	Not distributed	Unknown	Totals
<50%	1/100	0/00.00	0/00.00	1
50-74%	3/37.50	2/25.00	3/37.50	8
75-89%	3/42.86	2/28.57	2/28.57	7
90% +	3/42.86	3/42.86	1/14.29	7
Totals	10	7	6	23

Missing frequency=1

Table 29
"C" or better completion rate groupings based on distribution of information on availability of student services as reported by the Telecourse Administrator (N=22)

Group	Distributed	Not distributed	Unknown	Totals
<50%	2/66.67	1/33.33	0/00.00	3
50-74%	4/44.44	2/22.22	3/33.33	9
75-89%	3/42.86	2/28.57	2/28.57	7
90% +	0/00.00	2/66.67	1/33.33	3
Totals	9	7	6	22

Missing frequency=2

Analysis: Instructor Office Hours Per Week

Although provisions for office hours and personal contact with the student is usually the provence of the instructor, the institution can make

recommendations concerning these services. Table 30 indicates the number of hours per week that instructors were reported to have office hours. Administrators reported that instructors typically had one to two hours (41.7%) of office availability, but a substantial number of institutions, 29.2% reported that instructors did not have office hours. Information from instructors or students was not available to corroborate these responses.

Table 31 and Table 32 represent the availability of the instructor based on the number of office hours per week as reported by each institution. Although 71.43% of the administrators with a completion rate of 75% to 89% recommended one to two hours of office availability, 57.14% of those in Table 31 and 100% of those in Table 32 whose institutions achieved a completion rate of 90% or more did not require instructors to have office hours.

No significant correlation could be established between the number of reported office hours and total completion rates. The analysis did show a moderate negative correlation between this variable and student success, but not a level to be found significant. The negative correlation implies that institutions with fewer office hours had higher levels of student success. Such conclusions should be viewed with some skepticism. The results may actually be a reflection of increased motivation in the more successful students.

Table 30
Number of instructor office hours per week as reported by the telecourse administrators

Hours per week	Freq.	%	Cumul Freq.	Cumul. %
0	7	29.2	7	29.2
1-2	10	41.7	17	70.8
3-4	4	16.7	21	87.5
5-6	3	12.5	24	100

Table 31
Completion rate groupings based on number of instructor office hours per week as reported by the telecourse administrator (N=23)

Group	0 hours	1-2 hours	3-4 hours	5-6 hours	Totals
<50%	0/00.00	1/100	0/00.00	0/00.00	1
50-74%	2/25.00	3/37.50	2/25.00	1/12.50	8
75-89%	0/00.00	5/71.43	1/14.29	1/14.29	7
90% +	4/57.14	1/14.29	1/14.29	1/14.29	7
Totals	6	10	4	3	23

Frequency missing=1
Pearson correlation coefficient of -0.02944 is not significant

Table 32
"C" or better completion rate groupings based on number of instructor office hours per week as reported by the telecourse administrator (N=22)

Group	0 hours	1-2 hours	3-4 hours	5-6 hours	Totals
<50%	1/33.33	1/33.33	0/00.00	1/33.33	3
50-74%	1/11.11	4/44.44	3/33.33	1/11.11	9
75-89%	0/00.00	5/71.43	1/14.29	1/14.29	7
90% +	3/100	0/00.00	0/00.00	0/00.00	3
Totals	5	10	4	3	22

Frequency missing=2
Pearson correlation coefficient of -0.34063 shows a moderate relationship but is not significant

Analysis: Student Contact With Instructors

According to authorities cited in the literature pertaining to telecourse theory, instructor contact with students represents the most important type of contact between the institution and the student. With this in mind, the various modes of contact and the frequencies of contact are given the greatest attention. Administrators, instructors, and students were surveyed concerning the types of students and instructor contact as well as the frequency of such contact. These data are presented both to investigate any possible correlations and to serve as indicators of agreement between instructors and administrators.

Table 33 shows the frequencies for the number of contacts with telecourse students to check on progress as recommended by telecourse administrators. The most frequently suggested number of contacts was four (33.3%) and only 8.3% did not make recommendations. A large number (20.8%) felt that such contact was important enough to warrant suggesting eight or more contacts during the course.

Instructors were asked to estimate the average number of times that they contacted telecourse students to check on their progress. Table 34 shows that 54.9% had contacted students on at one or two occasions, and 18.3% indicated that they had made six or more contacts during the telecourse. Although administrators most frequently recommended four contacts, this number was selected by only 11.3% of the instructor respondents. The 22.5%

of instructors who responded that they had not initiated contact with students is more than twice the percentage of administrators who made no recommendations.

When student were asked to report the average number of instructor initiated contacts (Table 35), 61.5% reported that the instructor did not contact them. This figure almost three times larger than the 22.5% of instructors who reported that they never initiated contact.

Table 33
Recommended number of instructor initiated contacts as reported by the telecourse administrators

Contacts	Freq.	%	Cumul Freq.	Cumul. %
0	2	8.3	2	8.3
1	1	4.2	3	12.5
2	2	8.3	5	20.8
3	6	25.0	11	45.8
4	8	33.3	19	79.2
5	0			
6	5	20.8	24	100

Table 34
Average number of instructor initiated contacts to check on progress as reported by telecourse instructors

Contacts	Freq.	%	Cumul. Freq.	Cumul. %
0	16	22.5	16	22.5
1	6	8.5	22	31.0
2	17	23.9	39	54.9
3	7	9.9	46	64.8
4	8	11.3	54	76.1
5	4	5.6	58	81.7
6+	13	18.2	71	100

Table 35
Average number of instructor initiated contacts to check on progress as reported by telecourse students

Contacts	Freq.	%	Cumul. Freq.	Cumul. %
0	439	61.5	439	61.5
1	103	14.4	542	75.9
2	76	10.6	618	86.6
3	37	5.2	655	91.7
4	31	4.3	686	96.1
5	3	.4	689	96.5
6+	25	3.5	714	100

Table 36 and Table 37 show the groupings for both categories of completion rates based on the number of instructor contacts with students as reported by administrators.. Although the majority of administrators in those institutions reporting completion rates in the 50% to more than 90% group in both categories also reported that they recommended that instructors contact students three to four times during the telecourse to check on student progress, no significant correlation could be established for this factor.

Table 36
Completion rate groupings based on recommended number of instructor contacts with students as reported by the telecourse administrator (N=23)

Group	0 contacts	1-2 contacts	3-4 contacts	5-6 contacts	Totals
<50%	0/00.00	1/100	0/00.00	0/00.00	1
50-74%	0/00.00	1/12.50	6/75.00	1/12.50	8
75-89%	1/14.29	0/00.00	5/71.43	1/14.29	7
90% +	1/14.29	1/14.29	3/42.86	2/28.57	7
Totals	2	3	14	4	23

Frequency missing=1
Pearson correlation coefficient of 0.10477 is not significant

Table 37
"C" or better completion rate groupings based on recommended number of instructor contacts with students as reported by the telecourse administrators (N=22)

Group	0 contacts	1-2 contacts	3-4 contacts	5-6 contacts	Totals
<50%	0/00.00	1/33.33	1/33.33	1/33.33	3
50-74%	0/00.00	2/22.22	6/66.67	1/11.11	9
75-89%	1/14.29	0/00.00	5/71.43	1/14.29	7
90% +	0/00.00	0/00.00	2/66.67	1/33.33	3
Totals	1	3	14	4	22

Frequency missing=2
Pearson correlation coefficient of 0.01043 is not significant

Table 38 and Table 39 outline the number of instructor initiated contacts, other than examinations or orientation sessions that were reported by the instructors. Although there seems to be an increase in the number of instructor reported contacts in the higher completion rate groupings for both the total completion rate and completion with a grade of "C" or better, a significant correlation could not be established. As expected, when Table 38 and Table 39 are compared with Table 36 and Table 37, the number of instructor reported contacts with students is not consistent with the number of administrator recommended contacts. It is not known how the completion rates would change if the number instructor contacts was consistent with the number of administrator recommended contacts.

Table 38
Completion rate groupings based on number of instructor initiated contacts with students as reported by the telecourse instructors (N=69)

Group	0 contacts	1-2 contacts	3-4 contacts	5-6 contacts	Totals
<50%	5/38.46	5/38.46	1/ 7.69	2/15.38	13
50-74%	2/14.29	6/42.86	4/28.57	2/14.29	14
75-89%	0/00.00	3/25.00	3/25.00	6/50.00	12
90% +	7/23.33	9/30.00	7/23.33	7/23.33	30
Totals	14	23	15	17	69

Frequency missing=2
Pearson correlation coefficient of -0.00640 is not significant

Table 39
"C" or better completion rate groupings based on number of instructor initiated contacts with students as reported by the telecourse instructors (N=68)

Group	0 contacts	1-2 contacts	3-4 contacts	5-6 contacts	Totals
<50%	6/37.5	5/31.25	2/12.50	3/18.75	16
50-74%	2/12.50	6/37.50	5/31.25	3/18.75	16
75-89%	0/00.00	3/30.00	2/20.00	5/50.00	10
90% +	6/23.08	9/34.62	6/23.08	5/19.23	26
Totals	14	23	15	16	68

Frequency missing=3
Pearson correlation coefficient of 0.07803 is not significant

Table 40 and Table 41 indicate the number of instructor initiated contacts as reported by telecourse students. As was seen in previous data, there was no significant correlation between instructor contact as reported by students and completion rates or completion with a grade of "C" or better. As expected from the previous calculation of frequencies, the difference in the perceptions of the instructors and students concerning the amount of contact is substantial. If instructors did not initiate the contacts as they

reported, the validity of the resulting statistical comparisons should be questioned.

Table 40
Completion rate groupings based on number of instructor initiated contacts with students as reported by the telecourse students (N=585)

Group	0 contacts	1-2 contacts	3-4 contacts	5-6 contacts	Totals
<50%	57/69.51	11/13.41	9/10.98	5/ 6.10	82
50-74%	105/53.85	69/35.38	21/10.77	0/00.00	195
75-89%	43/56.58	15/19.74	8/10.53	10/13.16	76
90% +	149/64.22	56/24.14	21/ 9.05	6/ 2.59	232
Totals	354	151	59	21	585

Frequency missing=162
Pearson correlation coefficient of -0.04243 is not significant

Table 41
"C" or better completion rate groupings based on number of instructor initiated contacts with students as reported by the telecourse students (N=566)

Group	0 contacts	1-2 contacts	3-4 contacts	5-6 contacts	Totals
<50%	68/67.33	15/14.85	10/ 9.90	8/ 7.92	101
50-74%	120/56.60	69/32.55	22/10.38	1/ .47	212
75-89%	38/57.58	14/21.21	7/10.61	7/10.61	66
90% +	117/62.57	49/26.20	19/10.16	2. 1.07	187
Totals	343	147	58	18	566

Frequency missing=181
Pearson correlation coefficient of 0.08623 is not significant

Holmberg's work has shown that the amount of contact with students is usually based on the expressed needs of the student (Holmberg, 1977). Table 42 shows the number of times students reported that they had initiated contact with the instructor. Although 54.3% had contacted the instructor one or more times, 45.7% did not initiate any contact.

As a point of interest, the total was calculated for the number of students who reported no contact with instructors except at examinations and group meetings. This number was found to be 241 or 35.52% of the telecourse student sample.

Table 42
Frequency of student initiated contact with instructors as reported by telecourse students

Contacts	Freq.	%	Cumul. Freq.	Cumul. %
0	328	45.7	328	45.7
1	147	20.5	475	66.2
2	123	17.1	598	83.3
3	54	7.5	652	90.8
4	35	4.9	687	95.7
5	13	1.8	700	97.5
6+	18	2.5	718	100

Missing frequency=23

Table 43 and Table 44 represent the completion rate groupings for student initiated contact with the instructors. Although approximately one third of the students in completion groups of 50% and greater for both categories reported that they initiated one or two contacts, a larger percentage in all groupings reported that they did not initiate any contact with their instructors. No significant correlation could be found between student initiated contact with instructors and completion rates or completion with a grade of "C" or better.

Table 43
Completion rate groupings based on number of student initiated contacts with instructors as reported by the telecourse students (N=589)

Group	0 contacts	1-2 contacts	3-4 contacts	5-6 contacts	Totals
<50%	36/43.90	27/23.93	13/15.85	6/7.32	82
50-74%	94/48.21	71/36.41	23/11.79	7/3.59	195
75-89%	44/57.89	25/32.89	4/ 5.26	3/3.95	76
90% +	104/44.07	84/35.59	38/16.10	10/4.24	236
Totals	278	207	78	26	589

Frequency Missing=158
Pearson correlation coefficient of -0.08054 is not significant

Table 44
"C" or better completion rate groupings based on number of student initiated contacts with instructors as reported by the telecourse students (N=589)

Group	0 contacts	1-2 contacts	3-4 contacts	5-6 contacts	Totals
<50%	47/46.53	32/31.68	15/14.85	7/ 6.93	101
50-74%	107/50.23	74/34.74	25/11.74	7/ 3.29	213
75-89%	34/51.52	25/37.88	4/ 6.06	3/ 4.55	66
90% +	86/45.26	65/34.21	30/15.79	9/ 4.74	190
Totals	274	196	74	26	570

Frequency Missing=177
Pearson correlation coefficient of -0.00162 is not significant

Analysis: Group Meetings of Students with Instructors

Table 45 through Table 47 show the frequencies for the perceptions of administrators, instructors, and students concerning the number of group meetings that were held during the telecourse. Table 45 shows that administrators made no recommendations (25%) as often as they recommended two meetings (25%). When instructors were asked the number of group meetings that were available to students, a small majority (50.7%) indicated that one or more meetings were available while 49.3% held

no group meetings. The number of meetings most frequently reported by instructors was three (16.9%) as shown in Table 46. In Table 47, telecourse students reported slightly a lower figure of 46.9% for the response related to no group meetings, but they are in agreement with instructors concerning the number of meetings most frequently held (16.9%)

Table 45
Group meetings as reported by administrators

Group Meetings	Freq.	%	Cumul Freq.	Cumul. %
0	6	25.0	6	25.0
1	0			
2	6	25.0	12	50.0
3	5	20.8	17	70.8
4	4	16.7	21	87.5
5	2	8.3	23	95.8
6+	1	4.2	24	100

Table 46
Number of group meetings as reported by telecourse instructors

Meetings	Freq.	%	Cumul. Freq.	Cumul. %
0	35	49.3	35	49.3
1	2	2.8	37	52.1
2	8	11.3	45	63.4
3	12	16.9	57	80.3
4	9	12.7	66	93.0
5	2	2.8	68	95.8
6+	3	4.2	71	100

Table 47
Number of group meetings as reported by telecourse students

Meetings	Freq.	%	Cumul. Freq.	Cumul. %
0	335	46.9	335	46.9
1	83	11.6	418	58.5
2	97	13.6	515	72.0
3	121	16.9	636	89.0
4	48	6.7	684	95.7
5	14	2.0	698	97.6
6+	17	2.4	715	100

Table 48 and Table 49 represent the completion rate groupings for the number of group meetings as reported by telecourse administrators. Although administrators in all completion groups of 50% or greater for both sets of data report recommending some group meeting, and although the largest percentages are reported in the three to four meeting recommendation group, no statistically significant correlation could be computed.

Table 48
Completion rate groupings based on number of group meetings as reported by the telecourse administrators (N=23)

Group	0	1-2	3-4	5-6	Totals
<50%	1/100.00	0/00.00	0/00.00	0/00.00	1
50-74%	1/ 12.50	3/37.50	3/37.50	1/12.50	8
75-89%	1/ 14.29	2/28.57	3/42.86	1/14.29	7
90% +	3/ 42.86	1/14.29	2/28.57	1/14.29	7
Totals	6	6	8	3	23

Frequency missing =1
Pearson correlation coefficient of 0.10285 is not significant

Table 49
"C" or better completion rate groupings based on number of group meetings as reported by the telecourse administrators (N=22)

Group	0 meetings	1-2 meetings	3-4 meetings	5-6 meetings
<50%	66.67	00.00	00.00	33.33
50-74%	22.22	33.33	33.33	11.11
75-89%	14.29	28.57	42.86	14.29
90% +	33.33	33.33	33.33	00.00

Frequency missing=2
Pearson correlation coefficient of 0.07004 is not significant

Table 50 and Table 51 show the completion rate groupings based on the number of required group meetings reported by telecourse instructors. Although 50% of the instructors with completion rates of 75-89% reported requiring three or more meetings, 60% in the 90% or more group reported no group meetings. Likewise, instructors in the "C" or better category for those same completion rates reported 60% and 57.90% respectively. A significant correlation could not be established for either completion rates or completion with a grade of "C" or better.

Table 50
Completion rate groupings based on number of group meetings as reported by the telecourse instructors (N=69)

Group	0	1-2	3-4	5-6	Totals
<50%	7/53.85	1/ 7.69	4/30.77	1/ 7.69	13
50-74%	4/28.57	4/28.57	4/28.57	2/14.29	14
75-89%	4/33.33	1/ 8.33	6/50.00	1/ 8.33	12
90% +	18/60.00	4/13.33	7/23.33	1/ 3.33	30
Totals	33	10	21	5	69

Frequency missing =2
Pearson correlation coefficient of -0.10851 is not significant

Table 51
"C" or better completion rate groupings based on number of group meetings as reported by the telecourse instructors (N=69)

Group	0	1-2	3-4	5-6	Totals
<50%	10/62.50	1/ 6.25	4/25.00	1/ 6.25	16
50-74%	6/37.50	4/25.00	4/25.00	2/12.50	16
75-89%	2/20.00	1/10.00	6/60.00	1/10.00	10
90% +	15/57.69	4/15.38	6/23.08	1/ 3.85	26
Totals	33	10	20	5	68

Frequency missing =3
Pearson correlation coefficient of 0.00129 is not significant

Table 52 and Table 53 show completion rates and the number of required group meetings reported by students. A majority of the students in all completion groups in Table 52 reported that at least one or two meetings were required. This is also true in the "C" or better category in Table 53 except for the 53.54% in the less than 50% completion group. Although most students represented did report attending required meetings, no significant correlation could be established.

Table 52
Completion rate groupings based on number of group meetings as reported by the telecourse students (N=585)

Group	0	1-2	3-4	5-6	Totals
<50%	35/43.21	15/18.52	28/34.57	3/3.70	81
50-74%	93/47.94	45/23.20	45/23.20	11/5.67	194
75-89%	24/31.58	16/21.05	29/38.16	7/9.21	76
90% +	98/41.88	77/32.91	54/23.08	5/2.14	234
Totals	250	153	156	26	585

Frequency missing =162
Pearson correlation coefficient of -0.08054 is not significant

Table 53
"C" or better completion rate groupings based on number of required group meetings as reported by the telecourse students (N=585)

Group	0	1-2	3-4	5-6	Totals
<50%	53/53.54	15/15.15	28/28.28	3/ 3.03	99
50-74%	101/47.64	47/22.17	50/23.58	14/ 6.60	212
75-89%	15/22.39	16/23.88	29/43.28	7/10.45	67
90% +	67/35.45	72/38.10	48/25.40	2/ 1.06	189
Totals	236	150	155	26	567

Frequency missing =180
Pearson correlation coefficient of 0.0478 is not significant

Analysis: Student Examinations

Tables 54 and 55 show the number of examinations reported by telecourse instructors and telecourse students. Although not specifically a student support service, examinations offer opportunities for contact between instructors and students.

Of the 71 instructor respondents, Table 54 shows that only one indicated that no examinations were held. It is possible that the instructor used another method of testing such as a final paper rather than a formal examination. The number of examinations given with the greatest frequency was three (29.6%) although 16.9% reported holding six or more examinations.

The frequencies reported by the students in Table 55 are similar to the instructor responses although students reporting three or less examinations reported fewer tests while those reporting four exams and those reporting six or more exams indicate more frequent testing than that reported by the instructors.

Table 54
Number of examinations per section as reported by telecourse instructors

Examinations	Freq.	%	Cumul. Freq.	Cumul. %
0	1	1.4	1	1.4
1	4	5.6	5	7.0
2	10	14.1	15	21.1
3	21	29.6	36	50.7
4	17	23.9	53	74.6
5	6	8.5	59	83.1
6+	12	16.9	71	100

Missing frequencies=0

Table 55
Number of examinations per section as reported by telecourse students

Examinations	Freq.	%	Cumul. Freq.	Cumul. %
0	7	1.0	7	1.0
1	3	.4	10	1.4
2	60	8.5	70	9.9
3	171	24.3	241	34.2
4	281	39.9	522	74.0
5	60	8.5	582	82.6
6+	123	17.4	705	100

Missing frequencies=36

Table 56 through Table 59 show the groupings for the completion rates for both categories as reported by telecourse instructors and telecourse students. Although Table 56 and Table 57 show that instructors with the completion rates in the 75%-89% group and in the 90% or more group reported the most frequent number of examinations, those with a less than 50% completion rates for both categories also reported more frequent examinations. No significant correlation could be calculated for this variable.

Table 58 and Table 59 show similar results based on the student responses. Students who completed in the 75% to 89% groups and in the 90% or more group show increased numbers of examinations as do those completing in the less than 50% groups. No significant correlation could be calculated for this variable.

Table 56
Completion rates based on the number of exams as reported by telecourse instructors

Group	0-1	2-3	4+	Totals
<50%	0/00.00	5/38.46	8/61.54	13
50-74%	3/21.43	6/42.86	5/35.71	14
75-89%	1/ 8.33	5/41.67	6/50.00	12
90% +	1/ 3.33	14/46.67	15/50.00	30
Totals	5	30	34	69

Frequency missing=2
Pearson correlation coefficient of 0.01681 is not significant

Table 57
"C" or better completion rates based on the number of exams as reported by telecourse instructors

Group	0-1	2-3	4+	Totals
<50%	0/00.00	5/31.25	11/68.75	16
50-74%	3/18.75	7/43.75	6/37.50	16
75-89%	1/10.00	4/40.00	5/50.00	10
90% +	1/ 3.85	14/53.85	11/42.31	26
Totals	5	30	33	68

Frequency missing=3
Pearson correlation coefficient of -0.14177 is not significant

Table 58
Completion rates based on the number of exams as reported by telecourse students

Group	0	1-2	3-4	5-6	Totals
<50%	1/ 1.27	0/00.00	62/78.48	16/20.25	79
50-74%	0/00.00	2/ 1.05	161/84.74	27/14.21	190
75-89%	0/00.00	0/00.00	35/47.30	39/52.70	74
90% +	6/ 2.56	25/10.68	119/50.85	84/35.90	234
Totals	7	27	377	166	577

Frequency missing=170
Pearson correlation coefficient of 0.05947 is not significant

Table 59
"C" or better completion rates based on the number of exams as reported by telecourse students

Group	0	1-2	3-4	5-6	Totals
<50%	1/ 1.03	0/00.00	71/73.20	25/25.77	97
50-74%	0/00.00	2/ .97	161/78.16	43/20.87	206
75-89%	0/00.00	0/00.00	35/53.85	30/46.15	65
90% +	6/ 3.16	25/13.16	91/47.89	68/35.79	190
Totals	7	27	358	166	558

Frequency missing=189
Pearson correlation coefficient of -0.03989 is not significant

Analysis: Most Frequent Type of Contact Between Instructors and Students

Table 60 represents the perceptions of telecourse instructors and students concerning the frequency of seven methods of contact. Both instructors (31%) and the students (27.1%) selected the telephone as the most frequent method of contact. The telephone was closely followed by mail (29.6%) and individual meetings (25.4%) for both groups. The two major differences in reporting occur in the instructors' and students' perceptions of

the frequency of use of individual meetings and orientation. Overall, instructors seem to perceive a greater frequency of contact than do students.

Table 60
Instructor's most frequent type of contact with students as reported by telecourse instructors and telecourse students (some respondents selected more than one choice)

Contact	Freq. Inst.	% Inst.	Freq. Std.	% Std.
Telephone	22	31.0	201	27.1
Mail	21	29.6	186	25.1
Individual Meeting	18	25.4	130	17.5
Optional Group Meeting	4	5.6	60	8.1
Required Group Meeting	9	12.7	83	11.2
Orientation	8	11.3	26	3.5
Testing	14	19.7	111	15.0

Table 61 through Table 64 show the completion groupings for the two categories of completion rates based on the most frequent method of contact as reported by instructors and students. Some instructors and students selected more than one option. Although no correlation can be calculated since the categories are not mutually exclusive, it is possible to use the data descriptively.

Table 61 and Table 62 show similar patterns of responses for both categories of completion rates based on the most frequent method of contact as reported by instructors. There seems to be no discernable pattern pointing to a possible relationship between any particular variable and higher completion rates in the methods of contact reported by instructors.

For instance, Table 61 shows that the less than 50% group reports higher percentages of completion than any other group in the use of the phone, individual meetings, and testing as the most frequent method of contact. In Table 62, only testing and required group meetings show higher percentages in the 90% or more group than in the 50% or less group. At the same time, the greatest percentage of completion (50%) occurs in the 50% to 74% group for the mail variable and in the less than 50% group for the individual meeting variable.

In the student data represented in Table 63 the phone variable shows a higher percentage of completion (38.38%) in the 50% to 74% group and the percentage of completion is higher for the mail variable in the 75% to 89% group. In Table 64, the percentage of completion remains high (38.24%) for the mail variable in the 75% to 89% group but drops for the phone variable (35.19%) in the 50% to 74% group. The data seems to show that the use of mail as a method of contact may be more useful to students who are not in either the highest or the lowest completion group in either of the categories of completion. This possibility is very tenuous, however, and is presented with the utmost caution.

Table 61
Completion rates based on the most frequent method of contact reported by telecourse instructors

Group	<50%	50-74%	75-89%	90% +	Totals
Phone	5/38.46	5/35.71	3/25.00	9/30.00	22
Mail	1/ 7.69	6/42.86	3/25.00	10/33.33	20
Ind. Meeting	6/46.15	1/ 7.14	0/00.00	11/36.67	18
Opt. Grp. Mtg.	0/00.00	1/ 7.14	2/16.67	0/00.00	3
Req. Grp. Mtg.	3/23.08	1/ 7.14	3/25.00	2/ 6.67	9
Orientation	2/15.38	0/00.00	0/00.00	5/16.67	7
Testing	4/30.77	1/ 7.14	1/ 8.33	8/26.67	14
Totals	21	15	12	45	93

Table 62
"C" or better completion rates based on most frequent type of contact reported by telecourse instructors (some respondents selected more than one choice)

Group	<50%	50-74%	75-89%	90% +	Totals
Phone	6/37.50	5/31.25	2/20.00	9/34.62	22
Mail	1/ 6.25	8/50.00	2/20.00	8/30.77	19
Ind. Meeting	8/50.00	1/ 6.25	0/00.00	9/34.62	18
Opt. Grp. Mtg.	0/00.00	1/ 6.25	2/20.00	0/00.00	3
Req. Grp. Mtg.	3/18.75	1/ 6.25	3/30.00	2/ 7.69	9
Orientation	2/12.50	0/00.00	0/00.00	5/19.23	7
Testing	4/25.00	1/ 6.25	1/10.00	8/30.77	14
Totals	24	17	10	41	92

Table 63
Completion rates based on the most frequent method of contact reported by telecourse students (some respondents selected more than one choice)

Group	<50%	50-74%	75-89%	90% +	Totals
Phone	23/27.71	76/38.38	16/20.25	37/15.68	152
Mail	3/ 3.61	60/30.30	27/34.18	57/24.15	147
Ind. Meeting	15/18.07	17/ 8.59	11/13.92	70/29.66	113
Opt. Grp. Mtg.	6/ 7.23	14/ 7.07	10/12.66	22/ 9.32	52
Req. Grp. Mtg.	11/13.25	16/ 8.08	14/17.72	41/17.37	82
Orientation	7/ 8.43	1/ .51	3/ 3.80	7/ 2.97	18
Testing	21/25.30	48/24.24	6/ 7.59	19/ 8.05	94
Totals	86	232	87	253	658

Table 64
"C" or better completion rates based on most frequent type of instructor contact as reported by telecourse students (some respondents selected more than one choice)

Group	<50%	50-74%	75-89%	90% +	Totals
Phone	39/37.86	76/35.19	7/10.29	29/15.26	151
Mail	4/ 3.88	70/32.41	26/38.24	39/20.53	139
Ind. Meeting	16/15.53	18/ 8.33	11/16.18	61/32.11	106
Opt. Grp. Mtg.	6/ 5.83	20/ 9.26	10/14.71	16/ 8.42	52
Req. Grp. Mtg.	11/10.68	16/ 7.41	14/20.59	41/21.58	82
Orientation	7/ 6.80	2/ .93	3/ 4.41	5/ 2.63	17
Testing	22/21.36	48/22.22	6/ 8.82	16/ 8.42	92
Totals	105	250	77	207	639

Missing frequency=170

Summary

Research Question 1: What is the sociodemographic composition of the North Carolina Community College telecourse student sample?

The sociodemographic description of the North Carolina telecourse student sample and its comparison to the 1984 national sample can be summarized as follows:

1. There are more female than male students and the percentage of difference between the two groups has increased significantly since 1984.

2. The majority of the students are less than 33 years of age and represent a younger sample than that found in 1984.

3. The sample is predominately White and the current ethnic distribution is similar to the national sample.

4. The majority of both males and females are married and slightly less than half of each group report dependents. The fact that twice as many single men report dependents than do single women is the single most intriguing sociodemographic finding. The 1984 study did not tabulate across marital status, gender, and numbers of dependents.

5. The majority of the students are employed but the number working 40 or more hours per week has dropped since 1984. Women are more likely than men to be employed parttime.

6. More than three-fourths of the telecourse students have had previous college experience, and this number is substantially higher than that reported in 1984. At the same time, the number of students with a degree has dropped slightly when compared to both the national and the North Carolina sample collected in 1984.

7. The majority of both the males and females reported that they had attended school in the last year. The figures show a similarity to the national sample but are substantially higher than the data collected for North Carolina in 1984.

8. For a substantial majority, this was the first telecourse experience. The current percentages for this sample are higher than the national sample but show more students with telecourse experience than the North Carolina data collected in 1984.

Research Question 2: What is the availability of selected support services offered to telecourse students as reported by telecourse administrators, telecourse faculty, and telecourse students?

Those support services that offered the greatest opportunity for contact between the institution and the student were selected for study. The availability of these services is summarized as follows:

1. All institutions offered video copies of telecourse programs for loan, as well as site based viewing. Some institutions offered both options.
2. Information was distributed to students on effective ways to study in telecourses in 19 of the 25 institutions.
3. Information was distributed to students on institutionally provided student services in 11 of the 25 institutions.
4. Office hours for faculty were required in 17 of the 25 institutions.
5. Telecourse administrators most frequently recommended at least four contacts (33.33%) with students other than examinations or group meetings. Although instructors most frequently reported initiating two contacts (23.9%) or no contact (22.5%), six or more contacts was reported by 18.2%. These figures were contradicted by the majority of students (61.5%) who reported no instructor initiated contact. Only 37.5% of the students reported that they initiated contact with instructors one or two times. Those who had no contact with instructors except during examinations or group meetings totaled

35.52%. Overall, instructors report a greater frequency of contact than can be verified by student data.

6. Administrators made no recommendations (25%) as often as they recommended two meetings (25%). A small majority (50.7%) of instructors indicated that one or more meetings were available. The number most frequently reported by instructors was three (16.9%), while 49.3% held no meetings. Telecourse students reported slightly a lower figure of 46.9% for the response related to no group meetings, but they are in agreement with instructors concerning the number of meetings most frequently held (16.9%).

7. Only one instructor indicated that no exams were held. The largest percentage of instructors (53.5%) and students (64.9%) reported three to four examinations. Those students reporting four or six exams reported a higher percentage than those reported by instructors.

8. The most frequent method of contact reported by instructors (31%) and students (27.1%) was the telephone. This was followed closely by mail and individual meetings.

Research Question 3: Is there a relationship between these student targeted support services and student completion rates as reported by faculty?

No significant pattern could be detected and no significant correlation could be computed for any relationship between any of the selected student support services and student completion rates. The data seems to show that

the use of mail as a method of contact may be more useful to students in the total completion category who are not in either the highest or the lowest completion groupings. This possibility is very tenuous, however, and is presented with the utmost caution.

The results, particularly as they apply to student contact with instructors, must be questioned due to the discrepancies noted in the responses between the administrators, the instructors and the students.

Research Question 4: Is there a relationship between these student targeted support services and student success rates as reported by faculty?

No significant pattern could be detected and no significant correlation could be computed for any relationship between any of the selected student support services and student success rates. The data does seems to show that the use of mail as a method of contact may be more useful to students who complete with a grade of "C" or better are not in either the highest or the lowest completion groupings. This possibility is very tenuous, however, and is presented with the utmost caution. The results, particularly as they apply to student contact with instructors, must be questioned due to the discrepancies noted in the responses between the administrators, the instructors, and the students.

In addition, a moderate but negative correlation was found between the number of instructor office hours and student success. Although the results seem to show a relationship between fewer office hours had higher

levels of student success, the results could also be a reflection of greater motivation in more successful students or some other contributing factor.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study investigated the possible relationships between selected student support services and rates of student completion and success in telecourses. In addition, this study furnished a sociodemographic description of the student telecourse respondents in North Carolina and compared it to the last extensive study of telecourse students published by Brey and Grigsby (1984). In both cases, the study proposed to provide descriptions rather than prescriptions for action. The research questions guiding this study were formalized as follows:

1. What is the sociodemographic composition of the North Carolina Community College telecourse student sample?
2. What is the availability of selected support services offered to telecourse students as reported by telecourse administrators, telecourse faculty, and telecourse students?
3. Is there a relationship between these student targeted support services and student completion rates as reported by faculty?
4. Is there a relationship between these student targeted support services and student success rates as reported by faculty?

The literature on distance education and telecourse students in particular is replete with studies related to the sociodemographic characteristics of these students with the study by Brey and Grigsby (1984) being the most extensive study to date. In answer to the first research question, the current study found that the telecourse student sample has changed in several specific sociodemographic areas in the eight years spanning the Brey and Grigsby study (1984), but that the current sample is not wholly dissimilar. The sample is still mostly White and married. By contrast, the sample is younger, has more female students, is working less, and has a higher level of education. The most surprising finding showed that more single males reported dependents than did single females. This study does not attempt to correlate these factors with student completion or success.

The research literature related to distance education contains much that attempts to sociodemographically define the telecourse student but suffers from a lack of investigation into the complex issues of human interaction (Garrison, 1987). Which interactions are useful, which are not, and how such interactions might be beneficial has not been established to any degree acceptable to the research community (Holmberg, 1977).

Although there is not a model or theory that attempts to define predictors of student completion or student success in telecourses, a number

of prominent researchers have focused their efforts on studies related to student interaction with the institution. While Holmberg (1987) and Sewart (1983) attempted to interpret a range of elements defined as communication, Baynton and Garrison (1989) attempted to narrow the focus to the element of control as a balance between independence, proficiency, and support through the process of communication.

Aside from a description of telecourse students, an interest in this final factor, support through communication, informed the design and scope of the major portion this study. By selecting those support services that offered opportunities for communication with the institution, this study sought to discover whether these elements had a relationship with student completion or student success.

The first step in the analysis, corresponding to the second research question, was to determine that such services were offered. The data showed that these services were offered at a majority of the schools. Some of the reported frequencies, specifically those related to instructor initiated contact with students, showed discrepancies when compared between administrators, instructors, and students. The results of the subsequent analysis may be invalid if support services were not supplied as reported.

The process of answering the third and fourth research questions provided both descriptive information and correlational statistics when feasible.

In the analysis relating to possible relationships between selected support services and student completion rates and student success, the bulk of the analysis revealed no patterns of interaction that corresponded to increases or decreases in completion rates or rates of student success.

In one of the two cases where some pattern was possible, the use of mail seemed to be the most effective means of contacting students who were not in either the highest or the lowest completion group in either of the categories of completion. This possibility is very tenuous, however, and is presented with the utmost caution. In addition to the previously noted limitations of the study, the discrepancies in frequencies reported by administrators, instructors, and students could have affected these results.

No significant correlation could be established between the number of reported office hours and total completion rates, but a negative moderate relationship was noted in the analysis of the number of office hours recommended for instructors by each telecourse administrator and student completion with a grade of "C" or better. This relationship was not found to be significant. A negative relationship would mean that campuses with fewer instructor office hours had more students with higher completion rates. Because the probability is so low and the relationship is negative, an alternate explanation may be that such results actually reflect students' motivation rather than any supposed relationship between the variables.

The study determined that there was no significant correlation between student support services and student rates of course completion or success. In addition to the previously noted limitations of the study, the discrepancies in frequencies reported by administrators, instructors, and students could have affected these results.

Recommendations

As Holmberg (1977, p. 48) has noted, "No conclusive proof has been established either to prove the necessity of face-to-face elements or to reject them as conventional embellishments." Although the results of the study did not find significant patterns or correlations between support services and student success, this study does not suggest that such services are irrelevant to all students. Factors unrelated to these services may influence their success or failure to produce results. In addition, differences in the frequencies reported by the groups of respondents may have affected the results.

It may be possible that more controlled studies in which application of specific services can be verified might produce different outcomes. It may also be possible that student psychological and sociological factors such as motivation, self reliance, reasons for enrolling in the course, and need to succeed may be the deciding factors. If such is the case, those students who can display the elements of independence and control as outlined by Baynton and Garrison (1987) may succeed without any institutional intervention. The identification of those who lack these qualities then becomes the task. Such

identification could result in specific interventions such as counseling or tutoring sessions specially designed to promote constant evaluation.

Additional studies should be done that attempt to answer the following questions:

1. How do personal factors such as number of hours in the work week, marital status, number of dependents, age, and level of education influence an individuals behavior as a student?
2. How do these factors influence the effectiveness of the interactions between the student and the institution?
3. What motivational factors are a work to encourage or discourage student completion and success?
4. How do these motivational factors affect the students' need for interaction with the institution?
5. How can a student's level of independence and control be evaluated?
6. Does a student's class ranking in a previous educational experience have an effect on the type of contact that is most effective for that student?

The answers to these questions may provide distance educators with the information needed to provide support services tailored to the unique needs of telecourse students.

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