

AN ABSTRACT OF THE THESIS OF

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Title: Identification and Analysis of Factors that Influence Adult
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The purpose of this study was to determine: 1) what factors are important in influencing adult students to participate in distance learning programs; 2) whether students prefer interactive television or instructional television.

A review of the literature identified items that were considered important to students participating in distance learning programs. The items identified in the literature were reviewed by a jury of experts. From the list of items a questionnaire was developed for this study.

Students from two Oregon community colleges completed the questionnaire. A total of 127 questionnaires were analyzed. The data were analyzed with the use of descriptive statistics, factor analysis, analysis of variance, Chi Square and t-test.

Twenty-two of the thirty-four items in the questionnaire were considered very important or important to students. Factor analysis clustered the items under the factors socializing, convenience, instructor, and supplemental activities. Students consider instructor and convenience the most important factors of distance

learning programs followed by supplemental activities and finally socializing.

Comparisons of students participating using instructional television and interactive television to deliver distance learning programs were also made. Analysis of the data indicates the four factors (socializing, convenience, instructor, and supplemental activities) have the same relative importance to students participating in academic and vocational distance learning programs. In addition, participation in instructional television programs was more convenient for students than interactive television programs.

Delivery of distance learning programs should: provide opportunities for students to socialize; be convenient for the student to participate in; utilize instructors committed to using instructional television; and make available supplemental activities for students.

Identification and Analysis of Factors
that Influence Adult Students
to Participate in Distance Learning Programs

By

Clyde A. Rasmussen

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Identification and Analysis of Factors
that Influence Adult Students
to Participate in Distance Learning Programs

INTRODUCTION

The purpose of this study is to identify and analyze the factors that influence adult students to participate in distance learning programs.

Background of the Study

Television and other technologies used for distance learning have the potential to make teachers more productive and improve the quality of education at every level. This is possible because every television set in the United States has the potential to receive college education courses. In 1982 a total of 2,287 instructional television programs were broadcast in the United States (National Center for Education Statistics, 1985-86). Oregon community colleges broadcasted 120 distance learning courses during the 1990-91 school year. A total of 12,832 Oregon students were enrolled in distance learning courses during the 1990-91 (Oregon Community College Telecommunications Consortium, 1991). To realize the potential of distance learning will require long-term commitment to research and development in the use of instructional television and other technologies (Dirr, 1987; Jamison, Suppes, & Wells, 1974).

Today's technologies have provided a myriad of alternative instructional delivery systems such as satellites, cable television and point-to-point microwave. These systems transmit voice, video and data to remote classrooms at ever-decreasing costs. For example, interactive instructional television (IITV), which uses two-way voice, video, and print components, allows teacher control over the remote classroom. Interaction among students, teacher, and other experts is accomplished by linking learners at the remote site to the instructor via telephone or audio transmitter. Interactive instructional television, also referred to as two-way live television, is one of many means for delivering distance learning programs. Interactive instructional Television is intended to provide access to education for people who might not be able to attend the traditional college setting (Koontz, 1989; Murray, 1984; Weisner, 1983).

Many complex factors related to distance learning programs need to be recognized and understood before they can be used effectively. Increasing achievement, completion and student success are several of these factors (Dirr, 1987; Moore, 1985; Purdy, 1978; Tyler, 1980). A number of elements, such as achievement, social interaction, scheduling, economics, and demographics, enter into the development of attitudes toward distance learning technology (Anastasio & Wilder, 1986; Clifford, 1990; Dubin & Hedley, 1969; Starlin & Lottas, 1960).

Schramm (1962), Campeau (1974), Anastasio & Wilder (1986) and others reviewed many studies regarding attitudes toward instructional

television, student achievement and learning. The studies reviewed indicated there are no significant differences in achievement or attitudes when instructional television is compared to traditional face-to-face, live instruction. Schramm (1962) documented that approximately as much learning apparently occurs in a television class as in an ordinary class. In a comparison of 393 studies that reviewed instructional television, Schramm suggests that:

Under some conditions and used in some ways, instructional television can be highly effective and that the pertinent question is no longer whether a teacher can teach effectively on television, but rather how, when, for what subjects, and with what classroom activities instructional television can most effectively be used. (p.165)

Studies have shown that the preference for distance learning differs according to age. In more than 200 studies reviewed by Campeau (1974), comparisons between television and traditional classroom instruction indicate television is better received by elementary and secondary students than by young adults attending college. Chu and Schramm (1967) suggest that one possible reason for young adults not accepting distance learning could be the lack of immediate feedback given in traditional classroom teaching.

Sanborn, Miller, & Naitove (1976) and Clifford (1990) indicated that quality of both television and teaching, as well as student participation, are factors that may influence positive attitudes and achievement toward distance learning. Teachers who are involved in using television to teach young adults should study the idea of pre-testing and revision of televised lesson plans. Such a procedure

might contribute immensely to the effectiveness of instructional television and to its acceptance (Chu and Schramm, 1967). In a review of the literature on the use of television to teach adults, Campeau (1974) concluded:

What is most impressive about the formidable body of literature surveyed for this review is it shows that television is being used extensively, under many diverse conditions, and that enormous amounts of money are being spent for the installation of very expensive equipment. All indications are that decisions as to which audiovisual devices to purchase, install, and use have been based on administrative and organization requirements and on considerations of cost, availability, and user preference, not on evidence of instructional effectiveness. To date, television research in post-school education has not provided decision makers with practical, valid, dependable guidelines for making these choices on the basis of instructional effectiveness. (p. 31)

Statement of the Problem

The identification, analysis and understanding of the factors accounting for adult student participation in distance learning programs will provide instructional strategies to improve student motivation, participation and provide direction for the curriculum designers to improve distance learning programs (Campeau, 1974; Davis, 1984; Martin, 1977; Moore, 1985; Weisner, 1983). Martin (1977) reports that it is important to understand what motivates the adult student in distance learning programs because they are learners as well as consumers of information. Understanding what motivates adult students enrolled in distance learning programs will help to serve adult students better.

A review of the literature has identified attitude, achievement, instructional methods, social interaction and scheduling, and economic and demographic conditions as major factors influencing participation in distance learning. Baltzer (1980), Campeau (1974), Rivers & Schramm (1969), Jamison, Suppes, & Wells (1974), Weisner (1983), and others suggest that these seven factors and other unidentified factors account for success and failure of the adult student participating in distance learning programs.

A selective review of literature conducted by Campeau (1974) focused on 42 experimental studies assessing the effectiveness of various distance learning methods. These studies also identified many of the same factors previously identified as influencing participation in distance learning. Chu & Schramm (1967) reviewed 207 effectiveness studies comparing instructional television to face-to-face, live instruction and also found similar factors. In addition to these studies, the dissertations, reports and papers identified in the review of literature suggest these factors account for success and failure of distance learning programs.

Research-based information does not focus on identifying which specific factors associated with the delivery of distance learning programs and technology are of major importance to adult students (Dirr, 1986; Dirr & Pedone, 1979; Moore, 1986; Purdy, 1978; Weisner, 1983).

Significance of the Problem

Television and other technology have provided the means to extend the walls of the school, enabling the adult learner to learn at sites removed from the main campus and their instructors. The result is a rapid move toward a flexible system of delivering education and training (Dean, 1986). Alternative instructional delivery systems such as computer-assisted video instruction and telecourses can respond to the lifestyles of the adult learner with their education and training needs in the United States. These systems can reach students where they live, work, and play and allow these adults to continue their education.

According to the most current data available (National Center for Education Statistics, 1989), over thirteen million students 18 years of age and older were enrolled in postsecondary education. Full-time student enrollment in postsecondary institutions was 7.5 million, and part-time student enrollment was 5.8 million. In comparison, community college enrollment for 1985 was five million students while four-year college and university enrollment was five million (National Center for Education Statistics, 1986; Ottinger, 1987). In 1988 community college enrollment was 5.2 million while four-year college and university enrollment was 8.1 million (National Center for Education Statistics, 1989; Ottinger, 1987). Approximately half the students enrolled in community colleges are part-time students. Community college enrollment is half the total

enrollment of postsecondary education. Therefore, at least a quarter (25%) of the postsecondary enrollment is made up of part-time students.

Between 1985 and 1988 the average age of the adult student enrolled in postsecondary institutions was the late twenties or early thirties. Of these adult students, sixty to sixty-five percent were working either full or part-time in the workplace or in the home. The number of adult students over 25 years of age enrolled in postsecondary education has been growing more rapidly than the number of younger students. Enrollment for adult students 25 and over increased by 114 percent in this 3 year time period (National Center for Education Statistics, 1986, 1989; Ottinger, 1987).

Projections show that by 1993, the number of students 18 to 24 years old (the traditional population for postsecondary institutions) will drop by 18 percent. This decline is expected to have a profound effect on higher education. Those students who are 24 to 34 years old (which institutions call, "adult students") are expected to increase 59 percent by 1993 (National Center for Education Statistics, 1986, 1989; Ottinger, 1987).

Older students are attending full-time and part-time programs in record numbers (Ash, 1986). In Oregon, over 112,000 full-time and part-time students 24 to 34 years of age were enrolled in community colleges. A total of 310,000 students 18 years of age and older were

enrolled in Oregon community colleges (Office of Community College Services Report, 1991).

The rapid growth of technology has spurred institutions to make changes to meet the educational needs of these adult students (Connet, 1991; Werdel, 1974). Despite these efforts, the needs of the adult student will continue to grow. Providing better learning opportunities now is viewed as an investment in meeting the needs of this type of adult student far into the future (Moody, 1986).

The traditional teacher-lecturer standing before the large campus-based class is not the answer to the educational needs and learning styles of the adult student (Apps, 1985; Baltzer, 1980; Dirr, 1987; Tryoka, 1982; Weisner, 1983). Since educational institutions are being called upon to increase their effectiveness, it is imperative to select and use the instructional strategies that have the greatest impact (Bensen, 1986; Clifford, 1990; Jamison, Suppes, & Wells, 1974). Institutions have little choice but to change with the times or be left in the wake of untold technological breakthroughs (Lambert, 1986; Weinstein, 1983).

Satellite technology, laser technology, computer technology, video technology, television technology, and microwave transmitter technology have revolutionized human communications and will continue to do so. In an effort to use these technologies in an educational system, one should distinguish between types of courses and factors that increase achievement and program completion (Baltzer, 1980;

Jorgenson, 1986; Purdy, 1978; Weisner, 1983). Little information is available to guide administrators and teachers who counsel and interact with distance learners (Baltzer, 1980; Herschbach, 1984; Purdy, 1978; Weisner, 1983). Television has a unique ability to be designed to suit the learning styles of the mature and motivated adult student, but a major concern with the use of television relates to student support services. When developing technological media and systems for adult learners, the needs of these students must be recognized and understood (Clifford, 1990; Stover, 1985; Tyler, 1980).

To teach effectively using instructional television, instructors and other trainers must come to terms with a variety of questions. Which knowledge or content areas best lend themselves to distance delivery? How much of the course should be pre-produced and how much should be live? Do media-related resources currently exist? How can the instruction be humanized, and how can student participation be fostered? What types of peer and teacher interaction are important to the distance learner? What kinds of support services are necessary? Are teacher-training institutions prepared to provide this educational support?

Education must either begin to resolve these questions or lose important opportunities to train and educate America's workers (Dean, 1986). Coming to grips with these factors will improve the delivery

of TV programs (Ash, 1986; Bates, 1985; Dean, 1986; Lewis, 1983; Sharpe, 1980).

The Purpose of the Study

The central purpose of the study was to determine what major factors are deemed important in influencing adult students to participate in distance learning programs and use distance learning technology. The adult students referred to in this study are 18 years of age and older, working full-time or part-time, and enrolled in a vocational or academic program. The courses taken by the adult students were delivered by instructional television or interactive instructional television.

Specific research questions addressed were:

1. Are there underlying patterns of unity among the identified factors?
2. What is the relative importance of these patterns?
3. What perceptions do students have relative to the factors experts identified as being important to participation in distance learning programs?
4. Do differences exist regarding the importance of these factors based on distance learning format (e.g., IITV, Cable TV) and vocational or academic programs?

The following hypotheses were tested:

1. There is no significant difference between groups of students regarding the importance of identified factors

based on the program (academic or vocational) in which students were enrolled.

2. There is no significant difference between the factors identified by students relative to the type of television program (instructional television or interactive instructional television) in which students were enrolled at the specific institutions.
3. There is no significant difference between the factors identified by students relative to the type of program in which students are enrolled and type of television program in which students were enrolled at specific institutions.

Based upon results of the research questions and hypotheses, implications were considered regarding the student, teacher, administrator, facilities and equipment, and budgets for institutions responsible for the delivery of distance learning programs.

Definition of Terms

The following definitions are included for purposes of standardizing the use of terms in the study.

Academic program: Courses or programs that are transferrable to four year institutions (e.g., English, social sciences, natural sciences) (Craft & Cook, 1986; Murray, 1984; Werdel, 1974).

Adult students: Adult students 18 years of age and older, working full-time or part-time, and enrolled in a vocational or academic program (Craft & Cook 1986; Murray, 1984; Stover 1985).

Distance learning: A way of enabling students to learn at sites removed physically or geographically from their instructor and the broadcasting site (Baltzer, 1980; Dean, 1986).

Factor: Related subcomponents may be clustered under the major factors listed in the study (Borg, 1979; Courtney, 1982 & 1984).

Interactive technology: Instructional medium that permits, at a minimum, some form of two-way communication and one way video between the instructor and the student (Bensen, 1986; Dean, 1986; Lewis, 1983).

Non-interactive technology: Instructional medium which used alone, permits communication in only one direction (Bensen, 1986; Dean, 1986; Lewis, 1983).

Postsecondary institutions: Institutions, such as community colleges, four-year colleges and universities, that provide postsecondary education (Davis, 1969; Lewis, 1983; Stover, 1985).

Telecourses: A transmission of a course of instruction using television and other distance technology (Bensen, 1986; Dean, 1986; Lewis, 1983).

Vocational program: Courses or programs that prepare students with skills for entry into an occupation (e.g., basic computer skills, office management, medical terminology) (Craft & Cook, 1986; Murray, 1984; Werdel, 1974).

CHAPTER II

REVIEW OF RELATED LITERATURE

Since the use of distance learning technology is gaining significant support in education, there is a need to examine factors which influence student participation in distance learning programs. This chapter presents a review of selected literature relevant to the determination of these factors. Chapter II has been divided into six sections: 1) historical information about distance learning technology; 2) attitudes about distance learning; 3) achievement of students enrolled in distance learning programs; 4) instructional methods used for distance learning; 5) social interaction and scheduling of distance learning programs; and 6) economic and demographic factors associated with distance learning.

Since 1945, numerous studies have been conducted which relate student achievement with attitude toward instructional television. Schramm (1962), Campeau (1974) and others have reviewed and analyzed the findings from hundreds of studies examining distance learning programs. These studies, identified the major factors discussed in this review of literature.

Background

Factors which affect learning are considered important when distance learning technology is used. The use of this new

technology has caused educators to continually create the best possible learning environment for students. Educators know that students acquire most of their skills through learning. Gagne (1977) defines learning as:

A change in human disposition or capability, which persists over a period of time, and which is not simply ascribable to processes of growth. Learning is exhibited through a change in behavior. This change may be an increased capability for some type of performance or it may be an altered disposition called "attitude" or "interest" or "value". (p. 3)

There is a growing trend toward the use of distance learning technologies to deliver a variety of programs in many different areas. Distance learning technologies vary in technical level and other characteristics. Thus, distance learning technologies are divided into those that are non-interactive and those that are interactive (Lewis, 1983).

The term non-interactive refers to technology that, when used alone, permits communication in only one direction, for example, radio, television, audiotape, videotapes, cable television, and satellite television (Herschbach, 1984; Jones, 1985; Lewis, 1983). One-way videotapes are used more often in postsecondary education than audiotapes, cable television or satellite television (Dean, 1986).

The least complex of the non-interactive technologies are radio and audiotapes. These two technologies are accessible, portable and inexpensive. Radio and audiotapes do not require the listeners'

visual attention; students can learn while in cars, buses, trains, their homes, on the job, and on campus (Lewis, 1983).

Videotapes and cable television are most often used to supplement instruction or repeat video programming for the convenience of the student. The increased accessibility of video cassette recorders has been a major factor in the increased use of video programming. Satellite distribution makes national education program schedules technically possible and financially affordable. Institutions receiving national education programs can now afford to receive and broadcast programs to students in remote sites or at sites located on campus (Bensen, 1986; Dean, 1986; Lewis, 1983). Satellites are also used with other technologies as well (e.g., radio, television and telephones).

Interactive technologies refer to technologies that permit, at a minimum, some form of two-way communication. For example, interaction between teacher and students may be accomplished by linking learners at remote sites to the instructor via telephone or audio transmitter (Barker, 1986; Bates, 1985; Herschbach, 1984; Jones, 1985; Lewis, 1983; Robinson & West, 1986; Sharpe, 1980). Interactive technologies include interactive audio, video, and computers. Interactive television (i.e., two-way voice and video) is common to elementary and secondary education where teacher control over the remote classroom is essential (Dean, 1986; Jones, 1985; Purdy, 1978; Schramm, 1962; Weisner, 1983).

There are several reasons for selecting interactive technologies for instruction. First, student interaction with faculty has always been a valuable component of formal education. Second, interaction with peers is known to contribute greatly to the learning process (Lewis, 1983; Tryoka, 1982).

A review of the literature identified many interactive technologies. The following are various interactive technologies in use.

Audio technologies include regular telephone service and audio teleconferencing programs. Regular telephone service is most commonly used with non-interactive technology like radio, television or computers. Telephones add an interactive component to delivery systems that are transmitted to students over non-interactive technologies (Davis, 1984; Herschbach, 1984; Lewis, 1983).

An interactive technology that is increasingly used in business, industry, medicine, and education to facilitate group voice communication for meetings and instruction is audio-teleconferencing. Linking three or more telephone lines from any location allows individuals to communicate with one another. Audio-teleconferencing can be supplemented by combining one or more video technologies, thus creating a two-way video delivery system. This technology is most often used to provide educational services to widely dispersed populations (Baltzer, 1980; Bates, 1985; Lewis, 1983; Rushton, 1981).

Cable television is the most established of the alternative instructional delivery technologies. Two-way cable television allows students at specially equipped facilities such as senior citizen centers, high schools, and community colleges to participate in educational programs. Individuals at these sites can be both seen and heard by everyone on the cable system. Residential cable subscribers can view the video portion of the programming and interact with participants at the sites and at home by using their telephones (Baltzer, 1980; Dean, 1986; Lewis, 1983).

The satellite is becoming increasingly cost-effective. Often called a microwave tower in the sky, communications satellites are capable of transmitting video and audio signals from a single point of origination to numerous earth stations scattered over a large geographical area. If only one location is equipped to originate signals, then interactive programming is possible only if an audio technology is used to permit feedback from the receiving sites (Baltzer, 1980; Bates, 1985; Dean, 1986; Herschbach, 1984; Lewis, 1983).

The preceding discussion of distance learning technologies has identified a growing trend toward combining more than one technology within the same educational delivery system. These systems offer educators a vast capacity to interact with students and provide the educator with new and more effective teaching tools (Bensen, 1986). Increased use of interactive and non-interactive technologies will

inevitably result in a change in education and a need to identify consistent terminology.

Attitudes About Distance Learning

The development of non-interactive and interactive technology has influenced researchers to study student attitudes toward the acceptance of these systems. Schramm (1962), Campeau (1974) and other studies identified in this review examined student attitudes toward distance learning and the traditional classroom approach. In addition to student attitudes towards distance learning programs, many studies have focused on the age level of students who prefer to use distance learning programs.

In one review of the literature, Schramm (1962) assembled 425 studies focusing on ITV with adequate survey design, controls, and statistical treatment. In 393 of the studies instructional television was compared with other classroom teaching, and in 32 of the studies instruction by television was compared with classroom teaching. In these studies, Schramm found that attitudes toward televised instruction differ depending on how programs are presented. He explains:

There is the suggestion that attitudes of college students may be described as being more favorable to TV classes in subjects where demonstrations are important (for example, natural science and art), but less favorable where student-teacher interaction and classroom discussion and drill are important (English composition and social studies). (p. 162)

Attitudes cannot simply be related to grade and age level. There is considerable evidence that attitudes tend to be more specific to subjects rather than to teachers (Schramm, 1972).

A study conducted by Hegar (1977) compared the career interests, locus of control, attitude and achievement scores of students at one community college enrolled in an "Introduction to Business" class. Comparisons were made between students enrolled on campus and those enrolled off campus using instructional television. Hegar found there were no significant differences in the students attitudes toward the mediums of presentation for the "Introduction to Business" class.

Davis, Johnson and Dietrich (1969) also reported that student attitudes toward course content and their environment are affected by their acceptance of instructional television. The data revealed that student attitudes in TV sections were dependent upon the quality of the lecturer and the type of course being offered. The authors summarized:

It is possible to offer the following tentative hypotheses: On the whole, student interest and attention appear to be about the same whether a course is seen on TV or live. Furthermore, students in TV sections seem to feel they learn about as much as those who see the course live. (p. 61)

The objective of a study conducted by Frazer (1979) was to determine the attitudes and achievement of students in a course offered on a self-paced, individualized basis using video cassettes and compared them to attitudes of students in the traditional

lecture classroom. Frazer used individualized instruction with video cassettes in comparing face-to-face instruction. Frazer's extensive review of literature supports his findings; there was no significant difference in attitudes and achievement between the groups participating in the study.

A study conducted by Sanborn, Miller, and Naitove (1976) shows that two-way television enhances attitudes toward the medium. Sanborn, Miller, and Naitove indicate that this is caused by improved quality of television production, instructional content, quality teaching, and attitude. Their finding that two-way communication is preferred by students is not unexpected considering the research of Cogan (1963), Combs and Mitzell (1964), Flanders (1962), Gage, Runkel, and Chatterjee (1963), Ishler (1965), Mitzell and Rabinowitz (1953), and Withall (1956). Larimer and Sinclair (1969) report that not only do the factors identified by Sanborn, Miller, and Naitove enhance attitudes toward two-way television but students do not feel isolated from the instructor, student-teacher interaction exists, and the teacher can judge when to introduce new material.

A large number of non-television elements enter the attitudes toward television instruction (Anastasio & Wilder, 1986; Bernt, 1990; Dirr, 1987; Dubin & Hedley, 1969; Starlin & Lottas, 1960). These elements include instruction, subject matter, age, classroom

arrangements, presentation of instruction, teacher influence, and course content (Tyler, 1980).

Achievement of Students Enrolled in Distance Learning Programs

The following review addresses the area of learning via television and video tape as compared to face-to-face classroom instruction. Research regarding achievement and the use of instructional television has been conducted since the early 1950s. Schramm (1962) conducted a review of the literature from which he reports:

When the usual tests of achievement used by schools to measure student progress are employed, it may be said with considerable confidence that in 65 percent of the very large number of comparisons between televised and classroom teaching there is no significant difference. In 21 percent of the comparisons, students learned significantly more from television; in 14 percent, they learned significantly less. (p. 158)

An extensive review of the literature by Blumberg (1978) pertaining to the use of television as an instructional medium reports:

The years 1945 to 1970 comprised two and one-half decades of intense research in instructional media. During this period over 800 studies were conducted which compared student achievement in conventional classrooms with that of instructional television, radio, or films. Of the approximately 800 studies mentioned, about 300 of those were done at the college level. Of these 300 studies about 15 percent had results favoring conventional teaching methods, 80 percent showed no significant differences and 5 percent had results favoring instructional television. (p. 1)

Herminghaus (1981) offered instruction in three subject areas: ninth-grade general science, ninth-grade English composition, and second-grade spelling. The experimental group was slightly larger

than that of the control group although there were no significant differences between the group on the pre-test or on the final test. Hemminghaus (1981) reported that students who thought they had learned more attributed the increase to the fact that television offered a much greater variety of materials and experiences than they would find in a regular classroom. Those students who had learned less stated there was a lack of opportunity to ask questions and participate in group discussions and personal conferences with the teacher.

Brown, Brown, and Danielson (1975) argue that television segments produced to actively involve the viewers by having them label key elements of a graph were not significantly more effective as indicated by achievement scores than were television segments not requesting the learner to be physically active.

Blumberg (1978) compared the use of open-circuit instructional television with small-class conventional instruction on high, average, and low ability students achievement in elementary statistics. The mean achievement of the students in the conventional class was significantly higher than those students in the instructional television class.

Blumberg's findings differ significantly with the majority of previous research in the field. Causes for the differences have been due to the absence of a random sample and longer sessions for the conventional classroom. Students participating in the study

were allowed to enroll in the class of their choice. Additionally, the drop-out rate of the instructional television class was 23.6 percent as compared to the 15.8 percent in the face-to-face class.

Davis, Johnson, and Dietrich (1969) explain that most studies have found no significant differences in amount learned when comparisons are drawn between televised and non-televised courses. Based on studies involving 3,932 students in twelve courses, the following conclusion was drawn:

The over-all distribution of grades of students who saw lectures live was not significantly different from students who saw lectures on TV. (p. 60)

The study of computer-assisted instruction conducted by Thompson (1975) found no significant difference between the treatment groups in terms of learning performance. Additionally, no correlation was established between the non-interactive and interactive learning modes.

Campeau (1974) reviewed literally hundreds of comparative effectiveness studies (Allen, 1971; Campeau, 1966; Chu & Schramm, 1967; Dubin, Hedley, Schmidbauer, Goldman, & Traveggia, 1969; McKeachie, 1967; Reid & MacLennan, 1967; Twyford, 1969) and concluded that, in general, no significant differences were found when instructional television was compared with face-to-face, live instruction.

Other studies by Anastasio and Wilder (1984), Campeau (1974), Dubin and Hedley (1969), Schramm (1962) indicate no significant

difference in achievement. Only twenty-one percent of the studies showed students learned significantly more. It was clear from these studies that television instruction has been used with greater success in grades three through nine than in high school or community college.

Anastasio and Wilder (1984) report that, in 1963, Stidall did a critical analysis of 250 studies comparing achievement and attitude and excluded all but 33 from consideration for reasons of inadequate controls and inappropriate statistical analysis. Three of these studies showed statistically significant differences between traditional instruction and television instruction; all three of the studies favored television instruction. The other 30 studies showed no significant difference between instruction and preference.

Research seems to indicate that there are no significant differences in achievement or attitude when instructional television is compared to traditional face-to-face, live instruction. The research suggests that future studies should address factors which may possibly affect achievement and attitude of students enrolled in distance learning (Atman, 1985; Moore, 1986).

Instructional Methods Used for Distance Learning

Research examining instructional television and other types of distance learning programs have concerned themselves with achievement and attitude towards methods of instruction.

Campeau (1974) identified 42 studies that were considered to be comparable on the basis of several criteria, including the instruction lasting at least one semester; identical, written, course-content examinations were used for groups being compared; similar methods of instruction were experienced by both groups, whether in a televised or face-to-face situation. The author of this studies reports:

When teaching methods were matched, face-to-face instruction was superior to two-way instructional television, and then only when the lecture method was used by each medium. In attempting to explain the clear finding that two-way television was definitely inferior to face-to-face teaching (both using lecture methods), the authors conjectured that the requirement for students and lecturer to utilize the fairly complicated technical apparatus necessary for two-way communication may have been detrimental to the effectiveness of the medium. (p. 21)

Larimer (1969) reviewed research by Cogan (1963), Combs and Metzger (1964), Flanders (1962), Gage, Runkel, and Chatterjee (1963), Ishler (1965), Mitzell and Rabinowitz (1953), and Withall (1956) and found that two-way communication is preferred to one-way communication by students. Larimer (1969) reports:

The verbal interaction between teacher and pupil as well as between pupil and pupil is a major factor in the climate of the classroom. The classroom climate created by the teacher should be conducive to learning. Teachers create this climate largely by their verbal behavior.

Any instructor utilizing television, either one-way or two-way, should receive detailed orientation about the limitations and possibilities of the medium so that he might adapt his instruction to the use of the medium more effectively. (p.53)

A literature review conducted by Denton (1982) on educational utilization of two-way television reports that instruction via

two-way TV enhances attitudes toward the medium. Investigators found that quality of television production and quality of teaching, as well as student participation were factors influencing the positive attitudes.

From October 1, 1979, to May 31, 1980, the Anik-B project was a part of the two-year communications experiment for which the Anik-B satellite was being used. This project was designed to explore the possibilities of using Interactive instructional television to provide postsecondary education for people living in widely scattered and sometimes inaccessible areas of British Columbia. Sharpe (1980) reports that project was both educationally feasible and acceptable to people.

Instructors who teach by Interactive instructional television accept the idea that students are disadvantaged because of their isolation from the teacher. Effective television should be kept as simple as possible, except where some complexity is clearly required for one task or another. Students will learn more if they actively participate in the teaching-learning process (Schramm, 1972; Sharpe, 1980).

Bates (1985) argues that recent developments in technology hold considerable promise for distance learning. Changing not just teaching methods but the whole process of curriculum design and quality control is needed if television is to be used sensibly in higher education. Closed-circuit television is seen as an appendage

to existing teaching methods and is underutilized in most universities. When organized properly, television is particularly valuable for off-campus teaching, allowing for a much more flexible and continuous system of higher education (Ash, 1986; Bates, 1985).

Ash (1986) states:

These non-traditional education methods include almost anything in higher education that is new, unusual, or not usually practiced (e.g., television, computers, flexible programs).
(p. 3)

For the instructor, the responsibility for teaching rests in the ability to design and deliver high quality instruction in an interesting fashion without risking the formulation of negative attitudes by the students toward the method or topic of instruction. There needs to be a viable mix of program design, subject content, instructor expertise, student interaction, and shared experience if optimum learning is to occur. The challenge is in examining more closely the relationship of teaching techniques to attitudes of the students (Clifford, 1990; Davis, 1985; Houle, 1976; Jorgenson, 1986; Weinstien, 1983).

A traditional professor-lecturer-presenter standing before the large campus-based class is not the answer to the educational needs and learning styles of the adult student (Bernt, 1990; Rogers, 1969; Tryoka, 1982; Weisner, 1983). The instructional design for the adult student has two requirements. These requirements are that: (1) instruction needs to be arranged so that it will bring about the kind of change in a student which is called "learning" and

(2) the desire for a person to learn but independently within an environment of group orientation and group guidance (Gagne, 1970).

Gagne writes:

Putting ideas together from these two domains of knowledge can yield some techniques and procedures of instruction which should make the process of learning an optimally effective one. (p. 51)

Without the opportunity to interact with students, the teacher is deprived of the chance to measure teaching effectiveness (Larimer & Sinclair, 1969). In developing and designing technological media, devices, and systems useful in education, these more complex educational objectives need to be recognized and understood (Tyler, 1980). The most significant factor to consider in working out the video design of a telecourse must always be the needs of the students who will view the programs (Stover, 1985).

Social Interaction and Scheduling of Distance Learning Programs

Prior research revealed the importance of social interaction and scheduling of distance learning programs. The quality of television production and quality of teaching, as well as student participation, are factors influencing positive attitudes toward distance education (Sanborn, Miller, & Naitove, 1976). Students react unfavorably to any situation in which they are completely isolated from teaching staff (McLean, 1971). The intent of television is for students to become active rather than passive learners (Barker, 1986).

Mature learners are likely to approach the learning situation with motivation already well established. They know what the expected outcomes of learning should be, although information about objectives is often helpful in confirming their expectations. Mature learners need to feel a sense of community and belonging to a group. They like to be friends, and they like to interact with friends. Only then can they feel relaxed and safe enough to learn (Gagne, 1977; Moore, 1985; Tryoka, 1982).

The majority of these mature students are adults who bear the usual adult responsibilities of job, marriage, and family and are neither able to nor wish to participate in the separate-from-life college activities that have provided the model for higher education in the past (Baltzer, 1980). Tryoka (1982) explains:

These students are the ones who did not "get it" in high school; they are the ones who do not learn well from traditional lectures in the classroom. They are the ones who are confused or even insulted when teachers are inaccessible, detached, or unfriendly. (p. 256)

Vocational educators can use telecommunications to reach those who cannot or will not attend institutions during normal weekday hours (Dean, 1986). The needs of the student must always be of primary consideration when working out programs using telecommunications. Adult educators must be alert to the needs of the adult learner and recognize that learners vary in previous learning experience, capability, and required time to learn (Bernt, 1990; Martin, 1977; Stover, 1985).

Adults learn continually-in the home, at work and through their hobbies. They read journals at home, at work, and while traveling. Where they experience the greatest difficulty in learning is in organizing and structuring their learning against institutional requirements and having institutions recognize and legitimize the learning they acquire in these kinds of environments. One problem that arises in organizing and structuring learning is the reluctance of institutions to repackage segments of existing instructional content into new, interdisciplinary formats that respond to the unique needs of workers for new knowledge and skills (Tryoka, 1982).

Cross (1982), observed that:

Individualized learning, although it seems especially well suited to today's enormously diverse college population, is perpetually thwarted by such outmoded practices as semesters, credit-hour funding, and faculty-load formulas. (p. 1)

Scheduling becomes a special problem when a distance learning program is introduced or if students are adult students (Batey & Cowel, 1986). In terms of a weakness of the system, school administrators state their concern that the broadcast times of programs are not synchronized with the school bells (Barker, 1986). Since many students hold full-time or part-time jobs during the day, daytime scheduling creates a problem for them.

A study conducted by Murray (1984) indicated that time convenience and the ability of the student to be in control of his or her own learning rate were advantages of distance education. Not every student can or wants to start class on August 27, or complete

the course on December 14. This pace is too slow for some, too fast for others and inconvenient for people whose lives are not geared to academic quarters or semesters (Bates, 1980). Students do not want more on-campus sessions or anything that decreases their ability to complete a course at home and on their own schedule (Purdy, 1978).

Economic and Demographic Factors Associated with Distance Learning

Economic conditions and changing demographics combined with the rapid growth of technology have spurred institutions to respond to changes that meet the needs of the adult student. Researchers have reviewed economic conditions and changing demographics to provide an understanding of the adult student and the importance of meeting their needs. Moody (1986) observes:

With population aging, the relations between work, retirement, and retraining are likely to change. In the past few decades, while the average age of retirement has been falling, recent federal legislation has been moving in the opposite direction, raising the social security age to sixty-seven and the mandatory retirement age to seventy. With fewer young people seeking employment, we may be unable to forego the productivity of older workers. These trends make it imperative to rethink the role of worker training from the perspective of the entire life span. (p. 196)

Changes in the single-parent lifestyles, dual-career family, increases in geographic mobility, and economic conditions are requiring educators to recast traditional educational concepts to facilitate continued learning. Educators are becoming concerned with teaching household management skills, parenting skills, and time management. Community and junior colleges are providing ways to deliver to adults the skills necessary for future occupations.

They also are interested in providing retraining programs targeted to single parents and preparing adults to market themselves for new jobs well into middle age (Craft & Cook, 1986; Werdel, 1974).

Distance learning technology is being used by community and junior colleges to address the instructional needs that include upgrading professional skills, learning new skills, retraining displaced workers, providing small rural programs, or sponsoring evening programs run by community organizations. These programs are not necessarily taken for a degree but for professional reasons by a changing population (Herschbach, 1984; Murray, 1984).

Approximately 60 to 65 percent of students in their late twenties or early thirties are women. Most live in urban areas, have had some prior college experience, and are members of families with incomes above \$15,000. The vast majority are working either full-time or part-time in the workplace or in the home (Lewis, 1983).

Recent studies show that between 1970 and 1988 part-time enrollments at postsecondary institutions increased by 88 percent. Part-time enrollment is projected to increase an additional eight percent by 1993 (National Center for Education Statistics, 1986, 1989; Ottinger, 1987). According to the 1981 Bureau of the Census Survey, over 21 million persons participated in adult learning (National Center for Education Statistics, 1986). Workplace participation in training and development is roughly equivalent to

elementary, secondary, and higher education systems in size.

Employer expenditures for formal training in industry is approximately \$30 billion (Carnevale, 1986).

Changing demographic patterns have forced many colleges and universities to pursue an alternative clientele. This clientele includes older adults and part-time working adults (Dirr, 1987; Lewis, 1983). Lewis suggests that changing demographic and economic conditions affecting this clientele have increased the need for creating new ways of delivering educational programs.

An important asset of educational technology is its physical portability. It enables educators, for the first time, to deliver education where and when the consumers want to use it (Herschbach, 1984).

The findings of Blumberg (1978), Campeau (1974), Davis (1984), Frazer (1979), Hegar (1977), Schramm (1962) and others reveal many factors that influence adult students to participate in distance learning programs. These researchers suggest that these and related factors may influence learning as well as participation in distance learning programs. Distance learning programs can be used for effective learning and participation can be increased if these factors are given consideration (Bernt, 1990; Dirr, 1987; Jorgenson, 1986).

Summary

This chapter identifies factors that influence adult student participation in distance learning programs and the use of distance learning technologies (Atman, 1985). The literature reviewed for this study identified seven factors that influence adult students intentions and participation in distance learning programs and the use of distance learning technology. These factors are attitude, achievement, instructional methods, social interaction, scheduling, economics, and demographics.

In summary, these studies show that:

- attitudes vary from positive to negative.
- students achievement in traditional lecture programs can be compared with those in televised programs.
- instructional methods are important in identifying how to deliver distance learning programs.
- social interaction is a positive need of the adult student.
- scheduling distance learning at appropriate times is essential for adult students.
- economics and demographic conditions tend to be a key to adult participation in the use of distance technology.

Understanding factors related to the success and failure of distance learning programs and their major importance will help to serve adult students better (Dirr, 1986; Dirr and Pedone, 1979;

Moore, 1986; Purdy, 1978; Weisner, 1983). Erling Jorgenson (1986) stated:

My friends, we do not yet know enough about our science, the science of distance learning. We must, like scientists, experiment and conduct research in all aspects of distance learning so that we me know more.

Chapter III

DESIGN OF THE STUDY

This study is designed to identify factors influencing student participation in distance learning programs in Oregon. The process of data collection is discussed in this chapter.

Selection of the Sample

The population for this study consisted of adult students enrolled in distance learning programs at two postsecondary institutions in Oregon during spring term 1988. Data from the spring term 1988 report of the Oregon Community Colleges Telecommunication Consortium indicated that:

1. Total enrollment in postsecondary institution television programs spring term 1988 was 3,685 students.
2. Ten courses had lower division transfer credit and nine were vocational/non-credit courses.
3. At least six schools offered both instructional television and interactive instructional television programs.
4. An average of 60 percent of the students were female.

All postsecondary institutions in Oregon that provide both instructional television (used for delivery of telecourses) and interactive instructional television (used for delivery of live one-way video and two-way audio) courses were contacted to

participate in this study. Instructional television courses were delivered over cable television and received directly in the home. Interactive instructional television was delivered by microwave transmission or phone line. The IITV courses were broadcast to off-campus centers, business sites and local high schools.

The instructional television telecourses were locally produced on video by the community colleges. The interactive instructional television courses were broadcast live allowing students and teachers to interact through direct phone link. The following courses were delivered by both ITV and IITV: algebra I, calculus, English, business education (starting a small business), marketing, and medical terminology.

Only postsecondary institutions providing both ITV and IITV distance learning programs delivering academic and vocational course qualified for this study. The two institutions meeting this criteria agreed to participate in this study. The director of distance learning programs at each of the two colleges randomly selected students to survey from class lists and provided the names and addresses of each subject. Questionnaires were sent to the student with a cover letter from the participating school.

For purposes of this study the sample size was verified through the use of power analysis techniques. Courtney (1986) states:

A useful method of assessing adequacy of sample size is with power analysis. When power analysis is considered as a part of the design for purposes of setting sample size limits,

hypothesis testing results can be made more meaningful and with a greater degree of confidence. (p. 23)

A total of 200 questionnaire packets were sent to the distance learning program administrators at the selected postsecondary institutions for distribution. A response rate of 68 percent (132 responses) from the participating students was attained. Only 127 responses (64%) were judged usable. Table I is a matrix indicating the number of usable surveys by distance learning programs (instructional television and interactive instructional television) and course types (vocational and academic).

Table 1. Student Survey Sample Population

		ITV		IITV		TOTAL	
		N	%	N	%	N	%
VOCATIONAL	N	32	45%	21	38%	53	42%
	%	60%		40%		100%	
ACADEMIC	N	39	55%	35	62%	74	58%
	%	53%		47%		100%	
TOTAL	N	71	100%	56	100%	127	100%
	%	56%		44%		100%	

The Instrument

The instrument used for this study was a mail questionnaire developed from factors identified through the review of literature of distance learning studies. The survey instrument consisted of a listing of 34 items.

The instrument contained items related to attitude, achievement, instructional methods, social interaction and scheduling, and economic and demographic factors. These items were ranked on an importance scale to determine how students felt about each item. The importance scale is a five-interval rating scale requesting students to evaluate numerically each listed item relative to its influence on their use of the distance learning technology in which they were involved (Borg, 1979; Cattell, 1952; Tittle & Hill, 1967).

The development of the questionnaire began with a review of the literature identifying factors related to attitude, achievement, instructional methods, social interaction and scheduling, and economic and demographic factors associated with distance learning. Final design of the questionnaire was made with assistance from Oregon State University Survey Research Center. The selected items and the questionnaire were then reviewed by a jury of experts in the field of distance learning programs to for additions and modifications of the quesitonnaire (Appendix A). Based on the jury's responses, modifications were made to the list of items and

the questionnaire was redesigned as suggested. The amended survey instrument was then field-tested by ten students enrolled in a vocational teacher education program at Oregon State University who were older than the average students. The field-test subjects were personally contacted by the researcher to explain the purpose of the field test. The researcher encouraged the field test subjects to make suggestions by writing on the instrument. Information was also given orally in a follow-up interview. Final revisions were made and copies of the questionnaires were then sent to participating students. The revised instrument is shown in its final form in Appendix D.

Procedures

To solicit participation in this study, phone contacts were made with distance learning program administrators at the two selected institutions in Oregon (Appendix B). Two program administrators expressed interest in participating in the study. Two hundred survey packets were then mailed to the program administrators who agreed to mail the packets to selected students. Each packet contained a cover letter (Appendix C) from the program administrator that was printed on the institutions letterhead, the questionnaire (Appendix D), and a postage-paid return envelope.

The survey instruments were mailed to the program administrators for distribution. The final deadline for returning survey instruments was identified in the letter to each student

surveyed. A follow-up postcard reminding students to complete the questionnaire was mailed to each student home address. Address labels for the follow-up cards were provided by the program administrators to encourage a high return of the completed survey instruments (Appendix E).

Data provided on the returned questionnaires were then entered and verified by the researcher and staff of the Survey Research Center at Oregon State University. Data were analyzed by use of a Statistical Package for Social Sciences (SPSS) programs on the Milne Computer Center's Cyber computer.

Chapter IV

PRESENTATION OF FINDINGS

Participants in Distance Learning

Participants who completed the questionnaire provided significant demographic data. The data were analyzed to provide a profile of the students who enroll in distance learning programs. (See Appendix F for a list of the demographic questions and student responses.)

Sixty-six percent of the students enrolled in television courses for college credit or courses leading toward a college degree.

Undergraduate television programs accounted for 66 percent of the student enrollment.

Fifty-five percent of the students had taken at least one television course before.

Travel to the college campuses was less than 50 miles round trip for 86 percent of the subjects.

Twenty-four percent of the students completing the survey were male; 76 percent were female.

The median age for the students enrolled was 32. The youngest student was 16, the oldest 76.

Fifty-five percent of the students were married; 31 percent were single (14 percent did not respond to this question).

Nearly (91.4 percent) of the students had children. Of those having children:

- 25.8 percent had children under five years of age;
- 36.2 percent had children 6-12 year of age;
- 27.4 percent had children 13-18 years of age;
- 15.4 percent had children over 19 years of age.

Forty-four percent of the students were enrolled part-time, and 37 percent were enrolled full-time (19 percent did not indicate whether they were enrolled full-time or part-time).

Forty-three percent had completed some college; 21 percent had completed course work at the community college level.

Findings

The findings are presented for the following questions.

Question one: What are the underlying patterns of unity among the identified factors?

Question two: What is the relative importance of these patterns?

Question three: What perceptions do students have relative to the factors experts identified as being important to participation in distance learning programs?

Question four: Do differences exist regarding the importance of these identified factors based on distance learning program format (e.g., IITV, Cable TV) and vocational or academic programs?

In addition, findings are presented for the following hypotheses.

Hypothesis One: There is no significant difference between groups of students regarding the importance of identified factors based on the program (academic or vocational) in which they were enrolled.

Hypothesis two: There is no significant difference between the factors identified by students relative to the type of television program (instructional television or interactive instructional television) in which they were enrolled at the specific institutions.

Hypothesis three: There is no significant difference between the factors identified by students relative to the type of program in which they were enrolled and the type of television program in which they were enrolled at specific institutions.

The final section of the findings provides data relating significant differences to demographic data.

Underlying Patterns of Unity Among Identified Factors

Factor analysis was used to identify clusters of the items. Factor analysis performed the function of data reduction by grouping variables that were moderately or highly correlated with one another. This statistical technique identified a relatively small number of factors that represent the relationships among sets of the thirty four items of this study. The results of the correlation

analysis of identified items are presented in (Table G-1) Appendix G.

Table G-1 (Appendix G) is an intercorrelation matrix of 34 items. The Principle component factor analysis was the selected technique. The percentage of total variance was then examined to determine the number of factors to be used for this study (Table H-1). Variances smaller than 5.5 could not readily cluster items. The axes were rotated using the normal variamax technique.

Factor loadings were generated to express relationships among the 34 items in the questionnaire. Four major factors contain clusters of the 34 items having factor loadings ranging from .50 to .88. The titles to the factor were based on the similarities perceived among groups of items.

Table I-1, Appendix I presents the factor loadings. Table 2 is a summary of the results of the factor analysis. The items with the highest factors were:

Factor I, Socializing;

Factor II, Convenience;

Factor III, Instructor;

Factor IV, Supplemental Activities.

Factor I - Socializing

Five items were clustered under Factor I with factor loadings that ranged from .55 to .88. Two items concerned interaction with

Table 2. Summary of Highest Factor Loadings for Each Item by Factor.

Factor Number	Item Number	Factor Title and Item Description	Factor Loading
I		SOCIALIZING	
	11	Classroom environment	.55
	16	Sense of belonging to the class	.74
	17	Interaction with other students	.88
	18	Interaction with other students out of class	.81
	19	Need to be with friends during class	.80
II		CONVENIENCE	
	15	Flexible class schedules for viewing program	.64
	20	Class scheduled for student convenience	.66
	21	Students can enroll at their convenience	.66
	22	Convenience of home study	.62
	23	Distance from home	.59
	25	Programs delivered when and where students need them	.56
	27	Geographic location of campus and teacher	.50
III		INSTRUCTOR	
	13	Course design and quality	.83
	14	Presentation of subject matter	.76
	3	Quality of the teacher	.74
	32	Feedback given on assignments	.58
	5	Quality of lecture/demonstration	.57
	4	Accessibility of teacher	.50

Table 2. (Continued) Summary of Highest Factor Loadings of Each Item by Factor.

Factor Number	Item Number	Factor Title and Item Description	Factor Loading
IV		SUPPLEMENTAL ACTIVITIES	
	30	Additional on-campus lab or class time	.67
	6	Supplementary activities (on campus lab-work)	.64
	31	On-site teacher aids available	.63
	2	Type of technology used for delivery of course (e.g., TV, video tape, computer)	.52

other students. Two items related to a sense of belonging and being with friends. One item pertained to classroom environment.

Factor II - Convenience

The seven items in Factor II had factor loadings that ranged from .50 to .66 and contained four of the highest mean rankings. The items in this major factor were categorized under class scheduling and program location.

Factor III - Instructor

Six items were clustered under Factor III, with factor loadings ranging from .50 to .83. The highest loading item associated with this major factor was related to course design. Five items were related to the teacher and focus on presentation, feedback and accessibility.

Factor IV - Supplemental Activities

The four clustered items were additional lab time, supplemental activities on campus, teacher aids, and type of technology used for delivery of courses. These four items had factor loadings ranging from .52 to .67.

Relative Importance of Factors

An analysis of variance of the means of the items in the four factors (Table 3) was conducted. Results of the analysis of variance indicated a significant differences among the factors ($F=159.88$, $df=3,378$, $p=.00$). The importance of Instructor, and

Socializing, were the most and equally important factors.

Supplemental activities ranked third, and Convenience ranked fourth.

In summary, one of the goals of the factor analysis was to cluster the large number of items into the four factors identified. Factor scores were also generated for additional analyses. Factor scores were the product of standard scores and the factor weights. Factor analysis reduced the number of variables to four factors. The factors identified were Socializing, Convenience, Instructor, and Supplemental Activities.

Factor II, Convenience, was ranked equally with Factor III, Instructor. Seven items clustered under Convenience and six items clustered under Instructor. Factor IV, Supplemental Activities, ranked third and had four items.

Table 3. Importance Rating of Four Factors

Factor	N	Mean	Standard Deviation	95% Confidence Interval	
Instructor (F3)	127	4.36	.53	4.25 - 4.46	
Convenience (F2)	127	4.26	.55	4.16 - 4.36	
Supplemental Activities (F4)	127	3.73	.70	3.61 - 3.85	
Socializing (F1)	127	2.89	.90	2.73 - 3.05	
Sources	SS	DF	MS	F	p
Subjects w/in					
Cells	176.65	3	58.22	159.88	.00
Within Cells	137.64	378	.36		

The five items clustered under Factor I, Socializing, which ranked fourth.

The review of literature identified specific factors researchers suggested are important to successful distance learning programs. The factor analysis verified the factors identified in the research.

Perceptions Students Have Relative to the Factors

The students were asked to independently rate 34 items which were identified as important to participation in an instructional television program. Table 4 lists means, standard deviations, and the 95 percent confidence intervals for responses of each of the 34 items. The items are listed in order from largest means to smallest means (i.e., in order of importance). Several items may have the same rank. No significant difference was noted for the first six items listed in Table 4.

The respondents rated 28 of the 34 items either "very important" (mean ratings of 4.4 or higher) or "important" (mean ratings from 3.5 to 4.3).

Items 14, 15, 22, 25, 20, and 13 were considered "very important" by the respondents. Items 14 and 13 relate to instructor presentation of materials and the design of the course and quality of materials. Items 15, 22, 25 and 20 relate to convenience of location and time of program presentation. Item 1 relates to the type of course offered. Of the seven highest rated items, two involved the instructor and type of course offered. The remaining five items involved convenience of program delivery.

Table 4. Importance of Characteristics of Instructional Television.

Item	Characteristic	(N)	Mean	Standard Deviation	Confidence Interval +/- 95%
14	Presentation of subject	127	4.535	.66	4.41-4.65
15	Flexible class scheduling	126	4.516	.79	4.37-4.65
22	Convenience of home study	126	4.468	.70	4.34-4.59
25	Programs are delivered when and where the student needs them	127	4.465	.65	4.35-4.57
20	Class scheduled for student convenience	126	4.460	.78	4.32-4.59
13	Course design and quality	126	4.460	.67	4.34-4.57
1	Type of course offered	122	4.434	.81	4.28-4.58
3	Quality of teacher	123	4.382	.81	4.23-4.52
32	Feedback given on assignments and tests	126	4.381	.74	4.24-4.51
5	Quality of lecture/demonstration	127	4.345	.76	4.22-4.48
7	Learning level of coursework	125	4.208	.74	4.07-4.33
21	Student can enroll in program at their convenience	127	4.165	.87	4.01-4.31

Table 4. (Continued) Importance of Characteristics of Instructional Television.

Item	Characteristic	(N)	Mean	Standard Deviation	Confidence Interval +/- 95%
26	Upgrade professional skills for advancement	126	4.119	.95	3.95-4.28
4	Accessibility of teacher or facilitator to discuss course outside of class time	126	4.103	.89	3.94-4.26
2	Type of technology used for delivery of course (e.g., TV)	123	4.098	.81	3.95-4.24
8	Variety of course materials and handouts available	127	4.031	.82	3.88-4.17
12	Lectures videotaped for additional viewing	127	3.984	1.03	3.80-4.16
23	Distance from home	126	3.984	.93	3.81-4.14
9	Library resource materials available	125	3.920	.86	3.76-4.07
34	Registration costs	126	3.913	1.02	3.73-4.09
24	New job skills offered	124	3.823	1.01	3.64-4.02
10	Teacher-student interaction during lecture	126	3.794	.94	3.62-3.96

Table 4. (Continued) Importance of Characteristics of Instructional Television.

Item	Characteristic	(N)	Mean	Standard Deviation	Confidence Interval +/- 95%
27	Geographic location of campus and teacher	126	3.770	1.01	3.59-3.94
31	On-site teacher aids available	125	3.624	.93	3.45-3.79
33	Taught during regular sem./qtr.	126	3.595	1.06	3.40-3.78
6	Supplementary activities (on- campus lab-work)	125	3.592	1.01	3.41-3.77
30	Additional on-campus lab or class time is available	126	3.587	1.03	3.40-3.77
28	Classes can be taken at jobsite	126	3.500	1.10	3.30-3.69
29	Class is of interest to the community	124	3.339	1.05	3.15-3.52
11	Classroom environment	126	3.230	1.02	3.05-3.41
16	Sense of belonging to the class	126	3.198	1.08	3.00-3.39
17	Interaction with other students in class	125	3.032	1.06	2.84-3.22
18	Interaction with other students out of class	125	2.680	1.11	2.48-2.87

The 21 items rated important (3.5 to 4.3) and involved activities related to Socializing in the classroom, Convenience of taking the program, Instructor/Instruction Presentation and Supplemental Activities.

The six lowest rated items in the survey had a mean rating of less than 3.5 and were considered "neither important/unimportant or very unimportant". Item 28 is associated with class location. Item 29 is related to community interest in the class. Item 11 is associated with class environment. Items 16, 17, 18 and 19 are associated with socializing and classroom interaction. Two of the six lowest rated items were associated with community interest, classroom environment, and classroom interaction.

In summary, the questionnaire was designed to allow respondents to evaluate how much each item influenced students to participate in instructional television programs. Respondents labeled seven items very important, twenty one items important and six either important/unimportant or very unimportant. All items are placed in order by rated mean (Table 4).

Two of the items rated with a mean above 4.46 identify how important presentation and course design are to distance learning programs. The four items rated with a mean between 4.5 and 4.6 indicate that students like flexible schedules and distance learning delivered at their convenience.

Differences Regarding the Importance of Factors

(Format and Programs)

Mean scores for perceived importance of the clustered factors were used to determine whether differences existed between respondents based on type of program (variable 1) in which students were involved and the television format (variable 2) used to provide the program. Analysis of variance was used to determine whether the means of type of program and television format were significantly different from one another for each factor. The critical interval was set at the .05. This analysis providing the findings for hypotheses 1, 2, and 3.

The results indicate that there were no significant difference between students enrolled in academic or vocational programs regarding the importance of factors Socializing, (Table J-1 $F=.56$, $df=1,104$, $p=.45$), Convenience (Table J-2 $F=.10$, $df=0,104$, $p=.74$), Instructor (Table J-3 $F=3.80$, $df=0,104$, $p=.50$), and Supplemental Activities (Table J-4 $F=.003$, $df=1,104$, $p=.96$).

In this study students in academic or vocational programs viewed the importance on each of the four factors indicated in Tables I-1 through I-4 as similar. Analysis of variance of the mean scores of the four factors are presented in Appendix J.

Responses from students indicated television format was related to Convenience (Table J-2 $F=8.96$, $df=1,104$, $p=.03$). Respondents

preferred the format of instructional television compared to interactive television.

Comparisons were made between instructional and interactive television formats and the Socializing, Convenience, Instructor, and Supplemental Activities factors. The hypotheses for Convenience is rejected (Table J-2 $F=8.96$, $df=1,104$, $p=.03$). Students using the instructional or interactive television format indicate that there is no significant difference among the Socializing (Table J-1 $F=2.49$, $df=1,104$, $p=.11$), Instructor (Table J-3 $F=1.23$, $df=1,104$, $p=.26$), and Supplemental Activities factors (Table J-4 $F=.269$, $df=1,104$, $p=.60$).

Hypotheses three was retained as there were no differences regarding the four factors, type of program (academic and vocational), and television format (Appendix J). Mean scores and standard deviation indicate no significant differences for the hypotheses 1, 2, and 3 (Tables K-1 through K-4).

Significant Difference to Demographic Data

The chi square test was used to identify characteristic associations of respondents enrolled in vocational and academic programs. The chi square test was also used to identify significant differences between instructional and interactive television and characteristics of participants. This statistical technique provided an empirical mechanism for determining if such differences exist among the identified categories.

Tables L-1 through L-7 (Appendix L) contain the results of the findings for the chi square tests by vocational/academic programs characteristics of the courses. Results of Table L-1 ($\chi^2=11.07$, $df=5$, $p=.00$) suggest students enroll in vocational and academic courses for very different reasons. Academic courses are enrolled in for academic reasons (credit or college degree). Students enroll in vocational courses for personal development, upraged job skills, credit and degrees.

Students enrolled in previous academic programs indicate they enroll for undergraduate credit. Vocational students enrolled for personal improvement and undergraduate credit (Table L-2, $\chi^2=7=.82$, $df=3$; $p=.007$).

Table L-3 shows that no significant associations exist between students in vocational and academic programs and the number of miles home is from campus ($\chi^2=3.81$, $df=1$, $p=.08$). About 88 percent of the students in voational courses and 88 percent of the students in academic courses lived within 50 milews of the college.

Significant associations do not exist between students in vocational and academic programs and gender as seen in Table L-4 ($\chi^2 = 3.841$ $df= 1$ $p=.35$). The chi square value generated for Table K-7, however, indicates significant differences do not exist between students in vocational and academic programs and the level of education completed ($\chi^2= 2.29$; $df= 8$; $p= 15.507$). In addition, significant associations do not exist between students in vocational

and academic programs and the marital status of students (Table K-5, $\chi^2=5.991$, $df=2$ $p=.27$).

The results indicated associations exist between full-time, part-time, and other students in vocational and academic programs (Table L-6, $\chi^2=5.991$, $df=2$, $p=.04$). Students in academic courses are full-time and part-time students. Student enrolled in vocational courses are full-time, part-time, and other. Results did not provide a description of what "other" is.

Table L-7 ($\chi^2=15.50$, $df=8$, $p=.97$), indicates that associations exist between students in academic and vocational courses and the level of education students have completed. Students have completed a GED, high school, some college, community college, four year college, and some graduate work.

In summary, the analysis of relationships between characteristics of students enrolled in vocational and academic programs indicate:

1. Students enrolled in academic programs are interested in college credit.
2. Students previously enrolled undergraduate and graduate courses.
3. Students enrolled in vocational and academic programs live less than fifty miles from campus.
4. Students enrolled in academic programs are full-time and part-time students.

Tables M-1 through M-7 (Appendix M) contains the findings on instructional and interactive television.

Tables M-1 suggests significant associations exist between students enrolled in instructional and interactive programs and the purpose for enrolling (Table M-1, $\chi^2=9.48$, $df=4$, $p=.08$). Students enrolled in instructional and interactive programs for personal improvement, college, upgrading for job, and college degree.

The students in interactive television (Table M-2, $\chi^2=7.815$, $df=3$, $p=.03$), suggest that 76 percent last enrolled in college programs. Students in instruction television were enrolled in college programs and graduate programs.

The distance from campus of students enrolled in instructional (88%) and interactive (85%) television is less than 50 miles (Table M-3, $\chi^2=3.84$, $df=1$, $p=.39$). Significant associations do not exist between gender (Table M-4, $\chi^2=3.84$, $df=1$, $p=.13$) and marital status (Table M-5, $\chi^2=5.99$, $df=2$, $p=.60$) of student and instructional and interactive television.

Associations exist between full-time and part-time students and type of television program (Table M-6, $\chi^2=5.99$, $df=2$, $p=.03$). Interactive television students are full-time and part-time students. Instructional television students are full-time, part-time and other. There was no discription of other identified.

The results of Table M-7 indicate student associations between education level and type of instructional and interactive television

programs completed (Table M-7 $\chi^2=15.50$, $df=8$, $p=.45$). Students had completed some high school, GED, high school, some college, community college, four year college, and some graduate work.

In summary, the analysis of relationships among characteristics of students enrolled in instructional and interactive television indicate:

1. Students enroll in instructional television had been enrolled in college programs and graduated programs.
2. Students in instructional and interactive programs are less than fifty miles from campus.
3. Students enrolled in interactive and instructional television are married.
4. Part-time and full-time students enroll in interactive television.

T-tests were used for examining if differences between two groups of data derived from interval scales. The critical inference was set at .05.

Table N-1 (Appendix N) indicates that there was a significant difference between groups ($t=-2.93$, $df=120.29$, $p=.004$) as to the number of additional courses taken. Students enrolled in academic courses had completed more courses (mean = 1.4) than those enrolled in vocational courses (mean = .7).

Table N-2 indicates that students enrolled in vocational and academic courses did not differ in ages ($t=.97$, $df=123$, $p=.33$).

There are no differences between groups of students in instructional and interactive television and the number of additional courses taken (Table N-3, $t=.55$, $df=124$, $p=.51$).

Table N-4 also indicates there are no differences between groups of students in instructional and interactive television and present age ($t=.20$, $df=101.8$, $p=.84$).

In summary, the analysis of differences between groups of students enrolled in instructional and interactive television indicate there are significant differences only in the number of additional course taken.

CHAPTER V

SUMMARY, IMPLICATIONS, RECOMMENDATIONS FOR FURTHER STUDY

Summary

Participation in instructional and interactive television programs is influenced by four factors: Socializing, Convenience, Instructor, and Supplemental Activities. Making distance learning programs convenient and the instructor are the most influential of the four factors. Convenience allows students the flexibility to participate in programs when and where students prefer. Instructors influence the design and presentation of subject matter. Analysis of data indicated Supplemental Activities ranked third in importance. Supplemental Activities provide additional class time and resources for students in television programs. The fourth factor was Socializing. Socializing makes allowance for students to interact with other students. The underlying patterns of unity indicated by the 28 factors clustered within these four factors indicate the following patterns.

First, adult students prefer flexible class schedules which enable programs to be delivered when and where the students need them. Classes should be scheduled so that students can enroll at their convenience, take courses at home, and get to campus when necessary; get help from teachers at their convenience.

Second, the instructor is critical to distance learning programs. Courses should be designed for delivery using instructional television or interactive television. Presentation of subject matter, instructor preparation, and feedback on assignments are concerns for the instructors using instructional television or interactive television. The instructor must teach, entertain and be accessible to the student.

Third, distance learning programs must provide on-campus lab or class time, lab work, and additional technology (e.g., computers, videos) for delivery and student use. On-site teacher aids must also be available. These activities provide additional learning resources for student use.

Finally, students need interaction with others both in class and out of class. Being with friends provides a sense of belonging and adds to the classroom environment. Students need to feel they have the opportunity to socialize with others during distance learning programs.

It appears evident that educators must create instructional television and interactive television programs which meet the needs of the individual student. Socializing, Convenience, Instructor, and Supplemental Activities tend to bridge the distance between the instructor, student and campus and influence participation in television programs.

The development and implementation of distance learning programs should emphasize Socializing, Convenience, Instructor, and Supplemental Activities in order to influence student participation. It is advisable to implement a variety of the items (i.e., student interaction, flexible class schedules, presentation of subject matter, on-campus lab time) during the analysis, design, development, implementation and evaluation of distance learning programs. Students indicated these four factors influenced their participation in distance learning programs.

Comparisons of students in academic and vocational programs indicate no differences in the importance of the factors Convenience, Instructor, Supplemental Activities and Socializing. Student in academic and vocational programs viewed the important of each factor similarly.

When comparisons were made regarding instructional television and interactive television, a difference exists with the factor Convenience. Data suggested that instructional television is more convenient for students than interactive television. This study did not focus on whether students preferred instructional television to interactive television.

The factors Socializing, Convenience, Instructor, and Supplemental Activities identified in this study should be integrated into the delivery of distance learning programs for adult students. Each of the items (i.e., student interaction, flexible

class schedules, presentation of subject matter, on-campus lab time) clustered under the four factors are important to students in distance learning programs. Integrating these items in instructional television and interactive television programs will provide a framework to influence adult students to participate in distance learning.

This study has provided a framework and implications for improvement of distance learning programs to meet the needs of the adult students and influence their participation.

Implications

The findings of this study suggest implications for:

- Students
- Faculty
- Administration
- Facilities and Equipment
- Budget

Students

Convenience of distance learning programs and the Instructor/instruction are the most important factors identified in this study. The importance of flexible class schedules, home study, distance from campus, presentation of subject matter, and course design influence student participation in distance learning programs. The results imply that postsecondary institutions desiring to increase student participation in distance learning

programs could improve student participation by making programs convenient for students, improving presentation of subject matter, and improving course design. Although instructional television was identified as more convenient, students did not indicate a preference for interactive television.

Postsecondary institutions interested in increasing student participation in distance learning programs should also provide ways for students to interact with other students and be with friends. This could be done with additional on-campus activities (i.e., workshops, evening programs, lab work). This would imply possible reimbursement of students for travel expenses to and from campus. This could provide an incentive for students to attend on-campus activities. The on-campus activities should provide students an opportunity to interact in group settings, work as lab partners, and have personal contact with instructors. On-campus interactions allow for peer teaching and additional contributions through classroom interaction.

The students imply that distance learning classes should also be scheduled at a time when students can participate. Scheduling classes at times that are convenient for students expands access. Saving time and travel costs make distance learning convenient for the student. As a result students would have additional time and funds for other learning activities. Distance learning extends opportunities for student participation.

Faculty

This study identified the instructor as one of the two most important factors in the delivery of distance learning programs. The development of faculty is essential to the operation and delivery of distance learning programs. Implication for postsecondary institutions desiring to increase and improve faculty involvement in distance learning programs indicate staff development should be a priority.

To improve course design for distance learning programs, teachers should prepare materials well in advance. Course design could also mean materials will need to be mailed to students or delivered by some other means in a timely manner. In addition, courses should fit within a specific time frame so material will be covered during a specified time frame.

It is important that instructors receive feedback on assignments presented. To deliver and receive assignments and evaluation the instructor should consider using "fax" machines. This allows for students to send and receive assignments in a timely manner. Although the fax is a powerful tool, additional equipment and resources need to be identified as a means of delivery and receiving assignments and evaluations.

The findings implies that colleges and universities preparing teachers should focus their training on developing distance learning skills. These skills should make distance learning programs

convenient, provide opportunities for students to socialize, instruction, and identify supplemental activities for distance learning.

Administration

The four factors of Socializing, Convenience, Instructor, and Supplemental Activities suggest implications for administration of distance learning programs at postsecondary institutions. To develop more effective distance learning programs administrators should evaluate the four factors as they apply to their institutions. These factors provide the focus for instructional television and interactive television programs. Distance learning programs should be equivalent to on-campus courses.

This studies implies that administrators and faculty need to identify activities and instruction that will support interaction in and out of the classroom. Administrators will need to coordinate and schedule the availability of classrooms, lab space and television studios for supplemental activities (i.e., workshops, evening classes, and lab experiences). In addition, off-campus classrooms and lab sites could be used to provide opportunities for learning and socializing. Management of socializing activities and scheduling of instructional television programs should ascertain the effectiveness of the delivery of instruction.

As class schedules are made, the administrator will need to make distance learning convenient for the student. It becomes

important to deliver distance learning programs when and where the students want them. Administrators should schedule classes in the early mornings, evenings, and weekends. Classes could be scheduled during lunch hours at places where students work.

Video taping classes will provide an additional resource for students to view lectures or lessons at their convenience. Administrators will need to determine where students can obtain these videos. Additional copies should be placed in a library where students can obtain them at their convenience.

Administrators and the instructor should identify inservice needs of the distance learning instructor. They should provide a means of delivering printed materials to students for the instructor. The administrator must identify and provide staff development opportunities that will enhance distance learning instruction (i.e., use of television cameras, fax machines, studio equipment, lighting, sound equipment, video-players, electronic chalk boards). In addition, administrators should coordinate with other staff to develop support activities (i.e, overheads, slides, drawings, handouts) for use by the instructor. These activities imply a greater need for schedule management and coordination by administrators and faculty.

Facilities and Equipment

Instructional television and interactive television was produced by community colleges. This requires facilities and

equipment which may differ from that found in the conventional classroom. Each classroom may require television cameras, computers, video players, video tapes, telephones, microphones, electronic chalk boards, fax machines, and studio lighting. Administrators will need to identify and use existing systems and equipment (e.g., EDNET, cable television, satellites) for delivery of distance learning programs.

Facilities should have classroom studios with appropriate equipment. Additional personnel could be needed to operate cameras, sound equipment, and lighting. Successful distance learning programs will need facilities and equipment that will provide opportunities for students to socialize, deliver programs that are convenient for the student, meet the need of the instructor, and provide additional space and equipment for supplemental activities to meet student needs.

Budget

Budgets should be directed to improve and enhance distance learning programs at postsecondary institutions. Priorities should be given to facilities and equipment that support Socializing, Convenience, Instructor, and Supplemental Activities of distance learning programs. Budgets should focus on facilities and equipment that enhance instruction and provide the same opportunities a student would receive in an on-campus classroom.

Distance learning programs and supplemental activities for instructional television students will impact school budgets. Budgets should cover workshops, lab work, travel expenses and other distance learning activities that make distance learning convenient for the student. In addition, college budgets should provide opportunities for students to interact with other students. This would imply that interactive television provides opportunity for interaction. Instructional television courses surveyed during this study were received in the home and provided no interaction.

Budgets should provide staff development opportunities for curriculum improvement. Staff will require funding for training to use cameras, electronic switching devices, audio equipment and other television equipment. Additional work time using instructional television could require salary increases for faculty.

Administrators will need to review instructional activities with instructors and students to identify budget costs for distance learning programs. Facilities and equipment costs needed to deliver distance learning programs will impact budgets and should be reviewed by the administrator and instructor. These implications indicate that budgets developed by administrators and instructors must provide for television programs that influence student participation. Although instructional television was considered more convenient, budgets should focus on interactive television which provides opportunities for students to interact.

Recommendations For Further Study

1. The findings of this study should be tested through a similar study where the factors Socializing, Convenience, Instructor, and Supplemental Activities have been infused into instructional television and interactive television.
2. Research is needed to identify whether students in instructional television or interactive television learn more effectively.
3. Research should focus on how to make interactive television more convenient for students.
4. A more detailed study should be made to determine whether the items students identified improve programs and instruction.
5. Research is needed to determine if factors such as Socializing, Convenience, Instructors, and Supplemental Activities influence administrator decisions for budgets/costs and selection of facilities/equipment.

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APPENDICES

APPENDIX A
JURY OF DISTANCE LEARNING
PROGRAM EXPERTS

JURY OF DISTANCE LEARNING PROGRAM EXPERTS

Don Peters
Radio and Television Services
Washington State University
358 Murrow Communications Center
Pullman, Washington 99164-2536

Raymond J. Lewis
Oregon ED-NET
P.O. Box 30207
Portland, Oregon 97230

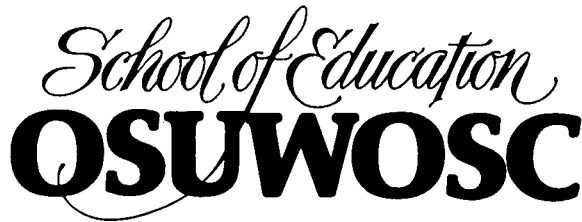
Ben Hamilton
Educational Media Services
Boise State University
Boise, Idaho 83705

Keith Harker
Chemeketa Community College
4000 Lancaster Dr. NE
P.O. Box 14007
Salem, Oregon 97309-5009

Ray Pirkle
Portland Community College
12000 SW 49th Avenue
Portland, Oregon 97219

APPENDIX B

LETTER TO JURY OF EXPERTS



A merged School serving Oregon State University and Western Oregon State College with graduate and undergraduate programs in Education.

April 14, 1988

Ray Pirk1
Portland Community College
12000 SW 49th Avenue
Portland, Oregon 97219

Dear Mr. Pirk1:

We need your help! To constantly improve educational delivery systems for adult learners, a study has been undertaken to identify factors which influence adult students to participate in distance learning programs. Enclosed is a copy of a questionnaire containing factors we have identified that influence adult student participation in distance learning programs.

We need your help to identify additional factors or delete those your feel are not important. Please review the questionnaire and make revisions that will help us improve the questionnaire.

May we please have the questionnaire returned to us before April 30, 1988.
Your assistance is greatly appreciated.

Sincerely,

Henry J. Sredl
Professor and Head
Industrial Education Program

Clyde Rasmussen
Research Assistant

APPENDIX C

LETTER OF SENT TO ALL STUDENTS

Date: June 15, 1988

TO: Survey Participants

We need you to complete the enclosed questionnaire.

We have distributed this questionnaire to all students enrolled in our instructional television programs offered at the college. The purpose of this questionnaire is to obtain your opinion about:

- (1) the importance of certain items needed in instructional television
- (2) who takes distance learning programs and for what purpose

It is anticipated that the information you give us will help the college to develop better instructional television programs. Your willingness to take the time needed to complete the questionnaire is appreciated. Please return the questionnaire in the self-addressed stamped envelope.

Thank you for your time and cooperation.

APPENDIX D
COPY OF DISTANCE LEARNING PROGRAM
SURVEY QUESTIONNAIRE

DISTANCE LEARNING PROGRAM SURVEY

88

The purpose of this questionnaire is to obtain your opinion regarding what items you consider important in the instructional television program you have participated in. The information you provide will be useful in improving instruction for instructional television programs.

INSTRUCTIONS FOR COMPLETION OF THE QUESTIONNAIRE

This questionnaire contains items that may or may not effect your desire to participate in an instructional television program. Please indicate if the item is VERY IMPORTANT, IMPORTANT, NEITHER IMPORTANT NOR UNIMPORTANT, UNIMPORTANT, OR VERY UNIMPORTANT for an instructional television program you would participate in. For each item circle the number (5 ④ 3 2 1) which most closely represents YOUR FEELING of how important that item is before you would participate in an instructional television program.

DISTANCE LEARNING PROGRAM SURVEY

TITLE(S) OF COURSE(S) YOU PARTICIPATED IN _____

PLEASE CIRCLE ONE NUMBER FOR EACH OF THE ITEMS LISTED BELOW.

	VERY IMPORTANT VI	IMPORTANT I	NEITHER IMPORTANT NOR UNIMPORTANT NI/UI	UNIMPORTANT UI	VERY UNIMPORTANT VUI
1. Type of course being offered (ie, math, science) 5	4	3	2	1	
2. Type of technology used for delivery of course (e.g., TV, video tape, computer) 5	4	3	2	1	
3. Quality of the teacher 5	4	3	2	1	
4. Accessibility of teacher or facilitator to discuss course outside of class time 5	4	3	2	1	
5. Quality of lecture/demonstration 5	4	3	2	1	
6. Supplementary activities (example: on campus lab-work, question & answer sessions) 5	4	3	2	1	
7. Learning level of coursework 5	4	3	2	1	
8. Variety of course materials and handouts available 5	4	3	2	1	
9. Library resource materials available 5	4	3	2	1	
10. Teacher-student interaction during lecture 5	4	3	2	1	
11. Classroom environment 5	4	3	2	1	
12. Lectures videotaped for additional viewing 5	4	3	2	1	
13. Course design and quality 5	4	3	2	1	
14. Presentation of subject matter 5	4	3	2	1	

Please turn the page

PLEASE CIRCLE ON NUMBER FOR EACH OF THE ITEMS LISTED BELOW.

		VERY IMPORTANT.....	NEITHER IMPORTANT NOR UNIMPORTANT.....	UNIMPORTANT.....	VERY UNIMPORTANT.....	
		VI	I	NI/UI	UI	VUI
15. Flexible class schedules for viewing program . . .	5	4	3	2	1	
16. Sense of belonging to the class	5	4	3	2	1	
17. Interaction with other students in class	5	4	3	2	1	
18. Interaction with other students out of class	5	4	3	2	1	
19. Need to be with friends during class	5	4	3	2	1	
20. Class scheduled for student convenience	5	4	3	2	1	
21. Student's can enroll in program at their convenience	5	4	3	2	1	
22. Convenience of home study	5	4	3	2	1	
23. Distance from home	5	4	3	2	1	
24. New job skills offered	5	4	3	2	1	
25. Programs are delivered when and where the student needs them	5	4	3	2	1	
26. Upgrade professional skills for job advancement	5	4	3	2	1	
27. Geographic location of campus and teacher	5	4	3	2	1	
28. Classes can be taken at job site	5	4	3	2	1	
29. Class is of interest to the community	5	4	3	2	1	
30. Additional on-campus lab or class time is available	5	4	3	2	1	
31. On-site teacher aids available	5	4	3	2	1	
32. Feedback given on assignments and tests	5	4	3	2	1	
33. TV courses must be taught during regular semester/quarter (e.g., fall quarter/semester)	5	4	3	2	1	
34. Registration costs	5	4	3	2	1	

Please go to next page

DISTANCE LEARNING PROGRAM INFORMATION

For the following statements please **circle** the most appropriate statement or **write** the best answer in the space provided.

1. For what purpose were you enrolled in the television course you just completed?
(Please circle one)

- 1 RETRAINING
- 2 PERSONAL DEVELOPMENT
- 3 COLLEGE CREDIT
- 4 UPGRADING JOB SKILLS
- 5 COLLEGE DEGREE
- 6 OTHER (specify) _____

2. What type of college television program were you last enrolled in? (Please circle one)

- 1 PERSONAL IMPROVEMENT (NON-CREDIT)
- 2 OCCUPATIONAL TRAINING (NON-CREDIT)
- 3 UNDERGRADUATE PROGRAM (ACADEMIC CREDIT)
- 4 GRADUATE PROGRAM (ACADEMIC CREDIT)
- 5 OTHER (specify)

3. How many additional courses using the television/video tape method have you taken?

_____ NUMBER

4. How many miles one-way is your home from the college campus where you were enrolled?
(Please circle one)

- 1 0-50 MILES
- 2 51-75 MILES
- 3 76-100 MILES
- 4 101 + MILES

5. Your sex.

- 1 MALE
- 2 FEMALE

6. What is your present age:

_____ YEARS

Please turn the page

7. Present marital status: (Please circle one)

- 1 SINGLE, NEVER MARRIED
- 2 MARRIED
- 3 DIVORCED
- 4 SEPARATED
- 5 WIDOWED
- 6 OTHER (specify) _____

8. Number of children, if any, you have in each of the following age groups:

- UNDER FIVE YEARS _____
- 6-12 _____
- 13-18 _____
- 19 AND OVER _____

9. Are you presently a fulltime or parttime student? (Please circle one)

- 1 FULLTIME STUDENT
- 2 PARTTIME STUDENT
- 3 OTHER (specify) _____

10. What is the highest level of education you have completed? (Please circle one)

- 1 SOME HIGH SCHOOL
- 2 GED OR HIGH SCHOOL CERTIFICATE
- 3 HIGH SCHOOL DIPLOMA
- 4 SOME COLLEGE
- 5 COMPLETED COMMUNITY COLLEGE
- 6 COMPLETED 4-YEAR COLLEGE/UNIVERSITY
- 7 SOME GRADUATE WORK
- 8 COMPLETED GRADUATE DEGREE
- 9 OTHER (specify) _____

Thank you for your cooperation

APPENDIX E

COPY OF POST-CARD INFORMATION
SENT TO STUDENTS AS FOLLOW-UP

Dear Student:

Recently you were sent a questionnaire seeking information about instructional television programs offered at your college. The information you can provide us is most important.

Please take the time to complete the questionnaire and return it as soon as possible. If you have completed the questionnaire we thank you for your assistance. YOUR ASSISTANCE IS GREATLY APPRECIATED.

THANK YOU
Clyde Rasmussen, Research Coordinator

APPENDIX F

DISTANCE LEARNING PROGRAM SURVEY
TOTAL OF RESPONSES AND PERCENTAGES

DISTANCE LEARNING PROGRAM SURVEY

95

	(N)	PERCENT
1. Type of course being offered (math, science)		
Unimportant	4	3.3
Neither Important or Unimportant	13	10.7
Important	31	25.4
Very Important	74	60.7
TOTAL	122	100.0
MEAN		4.43
STANDARD DEVIATION		.81
2. Type of technology used for delivery of course (e.g.,TV, video, computer)		
Very Unimportant	1	.8
Unimportant	2	1.6
Neither Important or Unimportant	23	18.7
Important	55	44.7
Very Important	42	34.1
TOTAL	123	100.0
MEAN		4.09
STANDARD DEVIATION		.81
3. Quality of the teacher		
Very Unimportant	1	.8
Unimportant	4	3.3
Neither Important or Unimportant	8	6.5
Important	44	35.8
Very Important	66	53.7
TOTAL	123	100.0
MEAN		4.38
STANDARD DEVIATION		.81
4. Accessibility of teacher or facilitator to discuss course with outside of class time		
Very Unimportant	1	.8
Unimportant	4	3.2
Neither Important or Unimportant	26	20.6
Important	45	35.7
Very Important	50	39.7
TOTAL	126	100.0
MEAN		4.10
STANDARD DEVIATION		.89

		96
	(N)	PERCENT
5. Quality of lecture/demonstration		
Very Unimportant	1	.8
Unimportant	1	.8
Neither Important or Unimportant	13	10.2
Important	49	38.6
Very Important	63	49.6
TOTAL	127	100.0
MEAN		4.34
STANDARD DEVIATION		.76
6. Supplementary activities (example: on campus lab-work, question & answer sessions)		
Very Unimportant	5	4.0
Unimportant	12	9.6
Neither Important or Unimportant	34	27.2
Important	52	41.6
Very Important	22	17.6
TOTAL	125	100.0
MEAN		3.59
STANDARD DEVIATION		1.01
7. Learning level of coursework		
Unimportant	2	1.6
Neither Important or Unimportant	18	14.4
Important	57	45.6
Very Important	48	38.4
TOTAL	125	100.0
MEAN		4.20
STANDARD DEVIATION		.74
8. Variety of course materials and handouts available		
Very Unimportant	1	.8
Unimportant	3	2.4
Neither Important or Unimportant	26	20.5
Important	58	45.7
Very Important	39	30.7
TOTAL	127	100.0
MEAN		4.03
STANDARD DEVIATION		.82

9. Library resource materials available	(N)	PERCENT
Very Unimportant	2	1.6
Unimportant	4	3.2
Neither Important or Unimportant	28	22.4
Important	59	47.2
Very Important	32	25.6
TOTAL	125	100.0
MEAN		3.92
STANDARD DEVIATION		.86
10. Teacher-student interaction during lecture		
Very Unimportant	4	3.2
Unimportant	2	1.6
Neither Important or Unimportant	42	33.3
Important	46	36.5
Very Important	32	25.4
TOTAL	126	100.0
MEAN		3.79
STANDARD DEVIATION		.94
11. Classroom environment		
Very Unimportant	9	7.1
Unimportant	14	11.1
Neither Important or Unimportant	55	43.7
Important	35	27.8
Very Important	13	10.3
TOTAL	126	100.0
MEAN		3.23
STANDARD DEVIATION		1.02
12. Lectures videotaped for additional viewing		
Very Unimportant	5	3.9
Unimportant	3	2.4
Neither Important or Unimportant	29	22.8
Important	42	33.1
Very Important	48	37.8
TOTAL	127	100.0
MEAN		3.98
STANDARD DEVIATION		1.03

13. Course design and quality	(N)	PERCENT
Unimportant	1	.8
Neither Important or Unimportant	10	7.9
Important	45	35.7
Very Important	70	55.6
TOTAL	126	100.0
MEAN		4.46
STANDARD DEVIATION		.67
14. Presentation of subject matter		
Very Unimportant	1	.8
Neither Important or Unimportant	6	4.7
Important	43	33.9
Very Important	77	60.6
TOTAL	127	100.0
MEAN		4.53
STANDARD DEVIATION		.66
15. Flexible class schedules for viewing program		
Very Unimportant	1	.8
Unimportant	3	2.4
Neither Important or Unimportant	9	7.1
Important	30	23.8
Very Important	83	65.9
TOTAL	126	100.0
MEAN		4.51
STANDARD DEVIATION		.79
16. Sense of belonging to a class		
Very Unimportant	11	8.7
Unimportant	16	12.6
Neither Important or Unimportant	51	40.5
Important	33	26.2
Very Important	15	11.9
TOTAL	126	100.0
MEAN		3.19
STANDARD DEVIATION		1.08

17. Interaction with other students in class	(N)	PERCENT
Very Unimportant	11	8.8
Unimportant	26	20.8
Neither Important or Unimportant	46	36.8
Important	32	25.6
Very Important	10	8.0
TOTAL	125	100.0
MEAN		3.03
STANDARD DEVIATION		1.06
18. Interaction with other students out of class		
Very Unimportant	22	17.6
Unimportant	29	23.2
Neither Important or Unimportant	49	39.2
Important	17	13.6
Very Important	8	6.4
TOTAL	125	100.0
MEAN		2.68
STANDARD DEVIATION		1.11
19. Need to be with friends during class		
Very Unimportant	42	33.3
Unimportant	30	23.8
Neither Important or Unimportant	42	33.3
Important	7	5.6
Very Important	5	4.0
TOTAL	126	100.0
MEAN		2.23
STANDARD DEVIATION		1.09
20. Classes scheduled for student convenience		
Very Unimportant	1	.8
Unimportant	1	.8
Neither Important or Unimportant	14	11.1
Important	33	26.2
Very Important	77	61.1
TOTAL	126	100.0
MEAN		4.46
STANDARD DEVIATION		.78

		100
21. Students' can enroll in program at their convenience	(N)	PERCENT
Very Unimportant	1	.8
Unimportant	2	1.6
Neither Important or Unimportant	28	22.0
Important	40	31.5
Very Important	56	44.1
TOTAL	127	100.0
MEAN		4.16
STANDARD DEVIATION		.87
22. Convenience of home study		
Very Unimportant	1	.8
Neither Important or Unimportant	9	7.1
Important	45	35.7
Very Important	71	56.3
TOTAL	126	100.0
MEAN		4.46
STANDARD DEVIATION		.70
23. Distance home from campus		
Very Unimportant	2	1.6
Unimportant	6	4.8
Neither Important or Unimportant	26	20.6
Important	50	39.7
Very Important	42	33.3
TOTAL	126	100.0
MEAN		3.98
STANDARD DEVIATION		.93
24. New job skills offered		
Very Unimportant	4	3.2
Unimportant	8	6.5
Neither Important or Unimportant	28	22.6
Important	50	40.3
Very Important	34	27.4
TOTAL	124	100.0
MEAN		3.82
STANDARD DEVIATION		1.01

25. Programs are delivered when and where the student needs them	(N)	PERCENT
Neither Important or Unimportant	11	8.7
Important	46	36.2
Very Important	70	55.1
TOTAL	127	100.0
MEAN		4.46
STANDARD DEVIATION		.65
26. Upgrade professional skills for job advancement		
Very Unimportant	2	1.6
Unimportant	5	4.0
Neither Important or Unimportant	23	18.3
Important	42	33.3
Very Important	54	42.9
TOTAL	126	100.0
MEAN		4.11
STANDARD DEVIATION		.95
27. Geographic location of campus and teacher		
Very Unimportant	6	4.8
Unimportant	3	2.4
Neither Important or Unimportant	37	29.4
Important	48	38.1
Very Important	32	25.4
TOTAL	126	100.0
MEAN		3.77
STANDARD DEVIATION		1.01
28. Classes can be taken at job site		
Very Unimportant	9	7.1
Unimportant	9	7.1
Neither Important or Unimportant	43	34.1
Important	40	31.7
Very Important	25	19.8
TOTAL	126	100.0
MEAN		3.50
STANDARD DEVIATION		1.10

29. Class is of interest to the community	(N)	PERCENT
Very Unimportant	9	7.3
Unimportant	16	12.9
Neither Important or Unimportant	35	28.2
Important	52	41.9
Very Important	12	9.7
TOTAL	124	100.0
MEAN		3.33
STANDARD DEVIATION		1.05
30. On-campus lab time is available		
Very Unimportant	5	4.0
Unimportant	12	9.5
Neither Important or Unimportant	38	30.2
Important	46	36.5
Very Important	25	19.8
TOTAL	126	100.0
MEAN		3.58
STANDARD DEVIATION		1.03
31. On-site teacher aids available		
Very Unimportant	4	3.2
Unimportant	10	8.0
Neither Important or Unimportant	33	26.4
Important	60	48.0
Very Important	18	14.4
TOTAL	125	100.0
MEAN		3.62
STANDARD DEVIATION		.93
32. Types of feedback on assignments and tests		
Very Unimportant	1	.8
Unimportant	1	.8
Neither Important or Unimportant	11	8.7
Important	49	38.9
Very Important	64	50.8
TOTAL	126	100.0
MEAN		4.38
STANDARD DEVIATION		.74

33. TV courses must be taught during regular semester/quarter (e.g., fall quarter/semester)	(N)	PERCENT
Very Unimportant	6	4.8
Unimportant	10	7.9
Neither Important or Unimportant	41	32.5
Important	41	32.5
Very Important	28	22.2
TOTAL	126	100.0
MEAN		3.59
STANDARD DEVIATION		1.06
34. Registration costs		
Very Unimportant	5	4.0
Unimportant	3	2.4
Neither Important or Unimportant	32	25.4
Important	44	34.9
Very Important	42	33.3
TOTAL	126	100.0
MEAN		3.91
STANDARD DEVIATION		1.02

DISTANCE LEARNING PROGRAM INFORMATION

1. For what purpose were you enrolled in the television course you just completed?	(N)	PERCENT
RETRAINING	5	3.9
PERSONAL DEVELOPMENT	16	12.6
COLLEGE CREDIT	43	33.9
UPGRADING JOB SKILLS	13	10.2
COLLEGE DEGREE	41	32.3
OTHER (specify)	9	7.1
TOTAL	127	100.0
2. What type of college television program were you last enrolled in?		
PERSONAL IMPROVEMENT	5	3.9
OCCUPATIONAL TRAINING	3	2.4
UNDERGRADUATE PROGRAM	84	66.1
GRADUATE PROGRAM	29	22.8
OTHER (specify)	6	4.7
TOTAL	127	100.0
3. How many additional courses using television have you taken?		
0	57	44.9
1	29	22.9
2	24	18.9
3	6	4.8
4	6	4.8
5	2	1.7
6	1	1.0
9	1	1.0
TOTAL	126	100.0
4. How many miles one-way is your home from the college campus where you were enrolled?		
0-50 MILES	110	86.6
51-75 MILES	4	3.1
76-100 MILES	2	1.6
101+ MILES	11	8.7
TOTAL	127	100.0
5. Your sex.		
MALE	31	24.4
FEMALE	96	75.6
TOTAL	127	100.0

7. Present marital status:	(N)	PERCENT
SINGLE, NEVER MARRIED	40	32.0
MARRIED	70	56.0
DIVORCED	12	9.6
SEPARATED	1	.8
WIDOWED	1	.8
OTHER (specify)	1	.8
TOTAL	125	100.0

8. Number of children, if any, you have in each of the following age groups:		
UNDER FIVE YEARS	30	24.6
6-12	42	37.1
13-18	26	22.5
19 AND OVER	28	15.8
TOTAL	126	100.0

9. Are you presently a full-time or part-time student?		
FULL-TIME STUDENT	48	38.4
PART-TIME STUDENT	57	45.6
OTHER (specify)	20	16.0
TOTAL	125	100.0

10. What is the highest level of education you have completed?		
SOME HIGH SCHOOL	3	2.4
GED OR HIGH SCHOOL CERTIFICATE	2	1.6
HIGH SCHOOL DIPLOMA	8	6.4
SOME COLLEGE	54	43.2
COMPLETED COMMUNITY COLLEGE	27	21.6
COMPLETED 4-YEAR COLLEGE/UNIVERSITY	6	4.4
SOME GRADUATE WORK	16	12.8
COMPLETED GRADUATE DEGREE	6	4.8
OTHER (specify)	3	2.4
TOTAL	125	100.0

APPENDIX G
INTERCORRELATION OF ITEMS
(TABLE G-1)

Table G-1. Intercorrelation of Items.

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19
Q1	1.00																		
Q2	.21	1.00																	
Q3	.04	.31	1.00																
Q4	.06	.24	.42	1.00															
Q5	.14	.23	.40	.31	1.00														
Q6	-.01	.24	.07	.28	.09	1.00													
Q7	.24	.03	.07	-.05	.03	.11	1.00												
Q8	.14	-.01	.28	.29	.12	.12	.38	1.00											
Q9	.23	.11	.10	.06	.18	.28	.36	.28	1.00										
Q10	-.07	.04	.26	.33	.22	.30	.09	.37	.12	1.00									
Q11	.06	.15	.15	.19	.14	.32	.13	.22	.21	.34	1.00								
Q12	.14	.20	.30	.19	.13	.19	.04	.08	.23	.26	.39	1.00							
Q13	.18	.34	.53	.34	.41	.10	.02	.14	.07	.21	.08	.27	1.00						
Q14	.16	.18	.43	.28	.25	.11	.06	.20	.08	.09	.06	.18	.68	1.00					
Q15	.04	-.02	-.02	-.01	-.08	.00	.06	.12	-.01	-.19	-.11	-.04	-.05	.03	1.00				
Q16	-.15	.07	.11	.29	.04	.27	.08	.26	.18	.36	.54	.19	.16	.10	.06	1.00			
Q17	-.12	.05	.25	.21	.05	.29	.13	.30	.18	.37	.52	.23	.10	.18	-.01	.71	1.00		
Q18	-.08	.01	.18	.17	.08	.25	.14	.25	.24	.17	.51	.18	.07	.20	.10	.56	.79	1.00	
Q19	-.08	-.12	.02	.04	.05	.17	.10	.17	.11	.18	.46	.10	.06	.18	-.00	.47	.67	.73	1.00
Q20	.14	.18	.00	-.01	.03	.06	.08	.17	-.02	-.11	-.02	-.08	.02	.05	.40	-.03	-.03	.04	-.03
Q21	.08	.03	-.05	-.09	-.08	-.13	.08	.16	.03	-.15	.08	-.01	-.09	.00	.38	.08	-.00	.15	.05
Q22	.15	.11	-.01	.03	.13	.01	.12	.13	.02	-.10	-.02	-.15	.06	-.00	.47	.02	-.16	-.00	-.06
Q23	.09	-.07	-.00	-.09	.08	.02	.02	.18	.01	-.08	.03	-.14	.03	.15	.26	.07	.07	.16	.12
Q24	-.03	.12	.10	.19	.01	.22	.08	.21	.05	-.00	.34	.05	-.03	.02	.25	.27	.25	.32	.19
Q25	.23	.18	.11	-.04	.14	.10	.18	.19	.11	-.10	.20	-.00	.07	.10	.21	-.02	.05	.13	.03
Q26	.07	.08	.16	.12	.15	.07	.07	.07	.07	-.13	.23	.18	.11	.15	.29	.16	.07	.31	.11
Q27	.14	.09	.16	.06	.10	.21	.16	.19	.19	.01	.29	.14	.15	.19	.26	.24	.10	.30	.23
Q28	-.14	-.07	.03	-.01	.06	.10	-.04	.12	-.03	.09	.29	.14	-.00	-.00	.20	.27	.12	.26	.18
Q29	-.09	.04	.02	.04	-.10	.15	-.02	.06	-.01	.09	.33	.18	-.02	-.03	.16	.50	.37	.40	.29
Q30	.00	.20	.05	.19	.10	.49	.06	.16	.15	.15	.34	.22	-.01	-.01	.13	.40	.40	.36	.29
Q31	.03	.20	.24	.42	.25	.47	.04	.21	.13	.18	.30	.26	.19	.19	.02	.41	.32	.26	.17
Q32	.17	.23	.36	.36	.31	.04	.00	.41	.15	.21	.07	.09	.35	.36	-.06	.09	.17	.07	-.02
Q33	-.03	.23	.18	.21	.21	.15	.02	.04	.14	.16	.11	.01	.25	.25	-.10	.20	.27	.14	.06
Q34	.12	.01	.20	-.02	.09	.15	.17	.39	.11	-.01	.00	.08	.17	.28	.17	-.00	.02	.11	-.00

Table G-1. (Continued) Intercorrelation of Items.

	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33	Q34
Q20	1.00														
Q21	.46	1.00													
Q22	.26	.39	1.00												
Q23	.16	.31	.33	1.00											
Q24	.16	.13	.40	.19	1.00										
Q25	.37	.32	.28	.37	.33	1.00									
Q26	.10	.23	.43	.16	.68	.30	1.00								
Q27	.30	.36	.34	.39	.39	.38	.48	1.00							
Q28	.06	.24	.20	.17	.35	.25	.43	.45	1.00						
Q29	.13	.23	.17	.22	.47	.29	.37	.37	.55	1.00					
Q30	.14	.15	.16	.09	.46	.22	.32	.26	.28	.50	1.00				
Q31	.05	.02	.19	.09	.33	-.03	.29	.22	.22	.24	.51	1.00			
Q32	.15	.07	.07	.19	.00	.13	.02	.11	-.07	-.02	.15	.29	1.00		
Q33	.10	-.09	-.09	-.12	.09	.06	-.02	-.00	-.24	.02	.15	.20	.30	1.00	
Q34	.23	.15	.13	.23	.21	.27	.20	.28	.21	.05	.07	.26	.21	.11	1.00

The sample size was different for each item therefore I used the smallest sample size to determine correlation coefficient value.

$r(100) = .195, p .05$

Any value greater than .195 is significant.

APPENDIX H
FACTOR MATRIX
(TABLE H-1)

Table H-1. Factor Matrix.

Factor		Percentage (Common Variance)	Cumulative Percentage
I	SOCIALIZING	19.7	19.7
II	CONVENIENCE	11.2	30.8
III	INSTRUCTOR	9.4	40.2
IV	SUPPLEMENTAL ACTIVITIES	5.5	45.8

APPENDIX I
PRINCIPLE COMPONENTS FACTOR ANALYSIS
OF
SURVEY ITEMS
(TABLE I-1)

Table I-1. Principle Components Factor Analysis of Survey Items.

Item	Survey Items	FACTOR			
		1	2	3	4
1	Type of course being offered (e.g., math, science)	-.27	.13	.18	.01
2	Type of technology used for delivery of course	-.21	.01	.32	.52
3	Quality of the teacher	.09	-.03	.74	.10
4	Accessibility of teacher or facilitator to discuss course outside of class time	.12	-.09	.50	.47
5	Quality of lecture/demonstration	-.04	-.02	.57	.17
6	Supplementary activities (e.g., on-campus lab work)	.21	-.04	.01	.64
7	Learning level of course work	.12	.13	-.05	-.00
8	Variety of course materials & handouts available	.35	.30	.27	.05
9	Library resource materials available	.16	-.02	.05	.13
10	Teacher-student interaction during lecture	.39	-.28	.25	.23
11	Classroom environment	.55	-.10	.06	.27
12	Lectures videotaped for additional viewing	.12	-.30	.28	.19
13	Course design and quality	.01	-.03	.83	.02
14	Presentation of subject matter	.14	.11	.76	-.09

Table I-1. (Continued) Principle Components Factor Analysis of Survey Items.

Item	Survey Items	FACTOR			
		1	2	3	4
15	Flexible class schedules for viewing program	-.01	.64	-.08	.02
16	Sense of belonging to the class	.74	.00	.06	.31
17	Interaction with other students in class	.88	-.04	.11	.21
18	Interaction with other students out of class	.81	.13	.08	.08
19	Need to be with friends during class	.80	.02	.01	-.07
20	Class scheduled for student convenience	-.07	.66	-.00	.19
21	Students can enroll in program at their convenience	.07	.66	-.09	-.06
22	Convenience of home study	-.19	.62	.01	.17
23	Distance from home	.16	.59	.11	-.18
24	New job skills offered	.20	.39	-.03	.42
25	Programs are delivered when and where the student needs them	-.00	.55	.08	.07
26	Upgrade professional skills for job advancement	.03	.37	.14	.20
27	Geographic location of campus and teacher	.18	.50	.16	.06

Table I-1. (Continued) Principle Components Factor Analysis of Survey Items.

Item	Survey Items	FACTOR			
		1	2	3	4
28	Classes can be taken at job site	.25	.24	-.01	.01
29	Class is of interest to the community	.43	.27	-.12	.25
30	Additional on-campus lab or class time is available	.32	.09	-.09	.67
31	On-site teacher aids available	.22	.08	.26	.63
32	Feedback given on assignments and tests	.08	.21	.58	.21
33	TV course must be taught during regular semester/quarter (e.g., fall quarter/semester)	.17	.01	.29	.40
34	Registration costs	.04	.42	.29	-.01

APPENDIX J

ANALYSIS OF VARIANCE ON
IMPORTANCE OF IDENTIFIED FACTORS I THROUGH IV
(TABLE J-1 TO J-4)

Table J-1. Analysis of Variance for Factor I - Socializing.

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Source of Variation	Sum of Squares	DF	Mean Square	F	p
Program	.56	1	.56	.56	.45
TV	2.46	1	2.47	2.49	.11
Program x TV	.81	1	.81	.82	.36
Error	100.21	101	.99		
Total	104.00	104			

Table J-2. Analysis of Variance for Factor II - Convenience.

Source of Variation	Sum of Squares	DF	Mean Square	F	p
Program	.091		.09	.10	.74
TV	8.35	1	8.35	8.96	.03
Program x TV	1.34	1	1.34	1.44	.23
Error	94.13	101	.93		
Total	104.00	104			

Table J-3. Analysis of Variance for Factor III - Instructor.

Source of Variation	Sum of Squares	DF	Mean Square	F	p
Program	3.711		3.71	3.80	.05
TV	1.20	1	1.20	1.23	.26
Program x TV	.24	1	.24	.24	.61
Error	98.68	101	.97		
Total	104.00	104			

Table J=4. Analysis of Variance for Factor IV - Supplemental Activities

Source of Variation	Sum of Squares	DF	Mean Square	F	P
Program	.003	1	.003	.003	.96
TV	.227	1	.277	.269	.60
Program x TV	.000	1	.000	.000	.99
Error	103.719	101	1.027		
Total	104.000	104			

APPENDIX K

MEAN AND STANDARD DEVIATION OF RATINGS
ON FACTORS BY PROGRAM AND TV
(TABLE K-1 TO K-4)

Table K-1. Mean and Standard Deviation of Ratings on Factor Socializing
by Program and TV.

PROGRAM	Instructional		Interactive		All	
	Mean	SD	Mean	SD	Mean	SD
Vocational	-.14	1.35	.39	.59	.08	1.11
Academic	-.13	1.07	.04	.75	-.05	.93
All	-.13	1.17	.16	.71		

Table K-2. Mean and Standard Deviation of Ratings on Factor Convenience
by Program and TV.

PROGRAM	Instructional		Interactive		All	
	Mean	SD	Mean	SD	Mean	SD
Vocational	.16	.96	-.10	.77	.05	.88
Academic	.31	.96	-.42	1.05	-.03	1.06
All	.25	.95	-.30	.96		

Table K-3. Mean and Standard Deviation of Ratings on Factor Instructor by Program and TV.

Factor III		TV				
PROGRAM	Instructional		Interactive		All	
	Mean	SD	Mean	SD	Mean	SD
Vocational	-.39	.88	-.05	.89	-.24	.86
Academic	.08	1.01	.22	1.07	.14	1.03
All	-.10	.98	.12	1.01		

Table K-4. Mean and Standard Deviation of Ratings on Factor Supplemental Activities by Program and TV.

Factor IV		TV				
PROGRAM	Instructional		Interactive		All	
	Mean	SD	Mean	SD	Mean	SD
Vocational	.05	1.12	-.04	1.17	.008	1.13
Academic	.04	.90	-.05	.95	-.005	.92
All	.04	.98	-.05	1.02		

APPENDIX L

CHI SQUARE OF ASSOCIATION
BETWEEN VOCATIONAL AND ACADEMIC PROGRAMS
(TABLE L-1 TO L-7)

Table L-1. Chi Square of Association Between Type of Programs and the Purpose for Enrolling.

PROGRAM	PURPOSE					
	Retrain	Personal Dev	College Credit	Upgrade Job	College Degree	Other
Vocational	9.6 (5)	30.8 (16)	15.4 (8)	25.0 (13)	15.4 (8)	3.8 (2)
Academic			46.7 (35)		44.0 (33)	9.3 (7)
CHI SQUARE= 11.07 df=5 p=.00						

Table L-2. Chi Square of Association Between Type of Program and Type of Program Last Enrolled.

PROGRAM	TYPE			
	Personal Improve	Under Graduate	Graduate	Other
Vocational	13.5 (7)	53.8 (28)	23.1 (12)	9.6 (5)
Academic	1.3 (1)	74.7 (56)	22.7 (17)	1.3 (1)
CHI SQUARE= 7.82 df=3 p=.007				

Table L-3. Chi Square of Association Between Type of Program and Distance Home is From Campus.

PROGRAM	MILES TRAVELED	
	0-50	51+
Vocational	84.6 (44)	18.4 (8)
Academic	88.0 (66)	12.0 (9)
CHI SQUARE= 3.841 df=1 p=.08		

Table L-4. Chi Square of Association Between Type of Program a Male/Female Students.

PROGRAM	SEX	
	Male	Female
Vocational	19.2 (10)	80.8 (42)
Academic	28.0 (21)	72.0 (54)
CHI SQUARE= 3.841 df=1 p= .35		

Table L-5. Chi Square of Association Between Type of Program and Marital status of Student.

PROGRAM	MARITAL STATUS		
	Single	Married	Other
Vocational	25.0 (13)	57.7 (30)	17.3 (9)
Academic	37.0 (27)	54.8 (40)	8.2 (6)
CHI SQUARE= 5.991 df=2 p= .27			

Table L-6. Chi Square of Association Between Type of Program and Full-time/Part-time Students.

PROGRAM	PURPOSE		
	Full-time	Part-time	Other
Vocational	26.9 (14)	50.0 (26)	23.1 (12)
Academic	46.6 (34)	42.5 (31)	11.0 (8)
CHI SQUARE= 5.991 df=2 p= .04			

Table L-7. Chi Square of Association Between Type of Program
and Level of Education Completed.

PROGRAM	EDUCATION LEVEL						
	Some HS	GED	High School	Some College	Community College	4 year College	Some Grad.
Vocational	1.9 (1)	1.9 (1)	9.6 (5)	40.4 (21)	21.2 (11)	5.8 (3)	11.5 (6)
Academic	2.7 (2)	1.4 (1)	4.1 (3)	45.2 (33)	21.9 (16)	4.1 (3)	13.7 (10)
CHI SQUARE= 15.50 df=8 p= .97							

APPENDIX M

CHI SQUARE OF ASSOCIATION
BETWEEN INSTRUCTIONAL AND INTERACTIVE TELEVISION
(TABLE M-1 TO M-7)

Table M-1. Chi Square of Association Between Type of Television and Purpose for Enrolling in Television Course Completed.

TV	PURPOSE				
	Personal Improve	College Credit	Upgrad Job	College Degree	Other
Instructional	8.8 (6)	35.3 (24)	13.2 (9)	33.8 (23)	8.8 (6)
Interactive	25.4 (15)	32.2 (19)	6.8 (4)	30.5 (18)	5.1 (3)
CHI SQUARE= 9.48 df=4 p= .08					

Table M-2. Chi Square of Association Between Type of Television and Type of Program Last Enrolled.

TV	TYPE			
	Personal Improve	College Program	Grad. Program	Other
Instructional	2.9 (2)	57.4 (39)	35.3 (24)	4.4 (3)
Interactive	10.2 (6)	76.3 (45)	8.5 (5)	5.1 (3)
CHI SQUARE= 7.815 df=3 p= .003				

Table M-3. Chi Square of Association Between Type of Television and Distance From Campus.

TV	DISTANCE	
	0-50	51+
Instructional	85.3 (58)	14.8 (10)
Interactive	88.1 (52)	11.9 (7)
CHI SQUARE= 3.84 df=1 p= .39		

Table M-4. Chi Square of Association Between Type of Television and Maled/Female Students.

TV	GENDER	
	Male	Female
Instructional	19.1 (13)	80.9 (55)
Interactive	30.5 (18)	69.5 (41)
CHI SQUARE= 3.84 df=1 p= .13		

Table M-5. Chi Square of Association Between Type of Television and Marital Status of Students.

TV	MARITAL STATUS		
	Single	Married	Other
Instructional	29.9 (20)	58.2 (39)	11.9 (8)
Interactive	34.5 (20)	53.4 (31)	12.0 (7)
CHI SQUARE= 5.99 df=2 p= .60			

Table M-6. Chi Square of Association Between Type of Television and Full-time/Part-time Students.

TV	FULL-TIME/PART-TIME		
	Full-time	Part-time	Other
Instructional	35.8 (24)	40.3 (27)	23.9 (16)
Interactive	41.4 ((24)	51.7 (30)	6.9 (4)
CHI SQUARE= 5.99 df=2 p= .03			

Table M-7. Chi Square of Association Between Type of Television
and Education Level Completed.

TV	EDUCATION LEVEL						
	Some HS	GED	High School	Some College	Community College	4 year College	Some Grad.
Instructional	1.5 (1)	1.5 (1)	6.0 (4)	41.8 (28)	20.9 (14)	1.5 (1)	16.4 (11)
Interactive	3.4 (2)	1.7 (1)	6.9 (4)	44.8 (26)	22.4 (13)	8.6 (5)	8.6 (5)
CHI SQUARE= 15.50 df=8 p= .45							

APPENDIX N
t-TEST OF DIFFERENCES
BETWEEN GROUPS
(TABLE N-1 TO N-4)

Table N-1. T-Test of Statistical Significance to Determine Difference Between Groups as to the Number of Additional Courses Taken.

COURSES	NUMBER OF CASES	MEAN	STANDARD DEVIATION	DF	t-VALUE	p-VALUE
Vocational	51	.72	.961	120.29	-2.93	.004
Academic	75	1.42	1.71			

Table N-2. T-Test of Statistical Significance to Determine Difference Between Groups as to the Present Age.

COURSES	NUMBER OF CASES	MEAN	STANDARD DEVIATION	DF	t-VALUE	p-VALUE
Vocational	51	33.35	11.52	123	.97	.33
Academic	74	31.48	9.86			

Table N-3. T-Test of Statistical Significance to Determine Difference Between Groups as to the Number of Additional Courses Taken.

COURSES	NUMBER OF CASES	MEAN	STANDARD DEVIATION	DF	t-VALUE	p-Value
Instructional	67	1.22	1.64	124	.55	.51
Interactive	59	1.05	1.30			

Table N-4. T-Test of Statistical Significance to Determine Difference Between Groups as to the Present Age.

COURSES	NUMBER OF CASES	MEAN	STANDARD DEVIATION	DF	t-VALUE	p-VALUE
Instructional	68	32.42	9.08	101.8	.20	.84
Interactive	57	32.03	12.19			