

AN ABSTRACT OF THE THESIS OF

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Purposes

This study was conducted to determine if there were possible areas of student individuality and uniqueness that might contribute to successful completion of distance education courses as compared to successful completion of traditional classroom courses. Five areas of possible differences were identified and studied: 1) differences between the number of successful completers, 2) differences in individual student learning styles, 3) differences in individual student self-directed learning readiness, 4) differences in individual student motivation, and 5) differences in individual student personal profiles.

The data collected in this research project came from 132 students enrolled in Psychology 111, a distance education course and traditional classroom course at University of Alaska Anchorage. Three survey instruments were used to collect the data as follows: Kolb's Learning

Style Inventory (LSI), Guglielmino's Self-Directed Learning Readiness Scale (SDLRS), and a General Questionnaire. In addition, students' final class standings (Pass/Fail) were used to determine completion status.

Findings of the study indicated that there was no statistically significant difference between the number of successful completers of distance education courses as compared to successful completers for traditional classroom courses. Findings also indicated that areas of learning style and learning readiness had no effect on the successful completion rates of students enrolled in distance education courses as compared to students enrolled in traditional classroom courses. Motivational differences appeared between the two groups studied in two areas, "Retraining" and "Fits my work schedule." The study findings also suggested that there were statistically significant differences in distance education students' personal profiles as compared to traditional classroom students' personal profiles in such areas as gender, full-time student status, marital status, and number of dependents.

Success in Distance Education Courses Versus
Traditional Classroom Education Courses

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Success in Distance Education Courses Versus Traditional Classroom Education Courses

CHAPTER I

INTRODUCTION

Background

An instructional telecommunication network of audio conferencing and television systems has been used by the University of Alaska since the early 1970s to serve the instructional needs of students throughout the state. The network, maintained by the university in cooperation with the Alaska Department of Education, was satellite-based and provided service to hundreds of rural communities across the state.

Initially Alaska used the Applied Technology Satellite (ATS) system to deliver audio and data transmissions to 26 communities in the state. The system included earth stations using three and four meter parabolic dish antennas as down links and the high latitude geostationary orbit ATS-1 as relay systems. In 1975 distance delivery of video programming was broadcast. The Learn/Alaska Network (L/AN) was established in 1980 and the satellite channel was used exclusively for network and public television (Willis, 1992).

By 1987, the Learn/Alaska audio conferencing network could be accessed by any telephone anywhere in the world and could link over 160 sites in up to 30 simultaneous

audioconferences (Willis, 1992). Learn/Alaska Instructional Television (ITV) Network used low-power television to reach over 240 communities through the use of the Satcom V satellite. In addition, over 30 sites could, under special arrangements, uplink their own programming. Network programming included pre-school, K-12, postsecondary/higher education, credit or noncredit continuing education, general education and specific interest programming (UAA, 1986).

Economic considerations forced the state to reduce funding for L/AN in 1987. The audio conferencing system was restructured and was placed under the control of the University of Alaska Fairbanks as the Alaska Teleconferencing Network (ATN). L/AN video equipment was relocated to the University of Alaska Anchorage (Willis, 1992).

The University of Alaska Anchorage (UAA) began delivering distance education courses during the Fall Quarter 1982. Four courses were delivered to 124 students. By 1991, 23 courses were delivered, with enrollment totalling 2,379. In the spring of 1991 the L/AN equipment was put into use and Live Interactive TeleClasses were produced and broadcast from UAA. A total of three courses were offered during Spring Quarter 1991 to 179 students over the new Live Network (LiveNet) system. Currently, LiveNet classes are produced on the

UAA campus in the Telecommunications Center. Audio conferencing is conducted using a 20-line bridge. Cable and standard broadcast technologies are used to provide video to students in the Anchorage area. An Aurora II satellite is used to reach communities outside of cable and standard broadcast areas. During Spring Quarter 1993, a total of 35 courses, including 5 Live/Net sections, were provided to a total of 884 students (UAA, 1993).

Statement of the Problem

Technological advancements in recent years have made it possible to take the classroom into homes via television, to remote sites via satellite, into dormitory rooms via fiber optic telephone lines, and onto personal computers via interactive computer programming. Technology also makes available audio courses, telephone conferencing courses, closed circuit television courses on college campus, and pre-recorded VHS videotape courses.

The use of technology to provide instruction takes several forms. Live television broadcasts of instructors conducting classes on campus or at distant sites are becoming a common form of distance delivery. Pre-videotaped courses have long been a mainstay in distance delivery, as have been the traditional "pen, paper, and audio tape" courses. Yet the vast majority of these courses are designed and delivered in the same manner as

traditional classroom courses. Davison (cited in Granger, 1990, p. 164) stated that, "educational technology optimizes the use of specialized knowledge and skill; at the same time it maximizes the distance between teacher and learner and weakens the traditional framework of interpersonal exchange." This technology poses a new problem for instructors and guidance counselors who must attempt to meet the individual needs of each distance learner, though they may never meet face-to-face or talk over a telephone.

Learning is an individual activity and many attempts have been made to determine what takes place during learning. Kolb (1984) concerning human uniqueness and individuality said, "The basic dilemma for the scientific study of individual differences . . . is how to conceive of general laws or categories for describing human individuality that do justice to the full array of human uniqueness" (p. 63).

This study did not attempt to conceive general laws or categories for human individuality. Rather, it attempted to look at the individual learner and identify possible areas of individuality and uniqueness that might have contributed to successful completion of a distance education course.

Research Questions Studied

The purpose of this research project was to determine if there were differences between successful adult learners of distance education courses and traditional classroom courses. Five research questions were formulated to guide the study to its completion. They were as follows:

1. Is there a difference in the percentage of successful completers of distance education courses and traditional classroom courses?
2. Is there a difference in individual learning styles of students who participate in distance education course and those who participate in traditional classroom courses?
3. Is there a difference in individual readiness for self-directed learning of students of distance education courses and students of traditional classroom courses?
4. Is there a difference in individual student motivation for distance education courses and traditional classroom courses?
5. Is there a difference in students' personal profile for students enrolled in distance education courses and traditional classroom courses?

This information could be used to provide counseling to students prior to enrollment in distance educational courses and help distance educators design their courses to meet the personal needs of distance learners. As Granger (1990) wrote, "in order for distance educators to develop programs which serve individual learners most effectively, the individual learner must be understood within his or her context" (p. 164). Likewise the individual learners should understand what it takes to be successful in distance learning courses and ready themselves appropriately for the tasks which lay ahead of them.

Significance of Study

Distance education takes place with the learner geographically removed from the immediate presence of the teacher (Holmberg, 1977). There are many reasons for this separation, among which are the need for schools to reach more students at reduced cost during times of fiscal austerity and the personal needs and desires of the learners. A study cited in Brock (1990) found that students enrolled in TV courses were workers, and more than half held full-time jobs outside their homes; a very significant portion of the others held part-time jobs. The study of 8,000 participants also found that more than half had family responsibilities. A study of 382 persons

enrolled in distance delivery courses at the University of Alaska Anchorage found that 65 percent were taking the course because the time the course was offered fit their work schedule. Only ten percent indicated that they were unwilling to travel to take the course on campus (Anderson, 1991).

Most distance education courses are designed around pedagogical models where the "teacher" dictates the direction, sequence, resources to use, rate, and character of learning (Granger, 1990). Because distance learning has traditionally been teacher directed learning it commonly "evokes passivity, resentment, and even hostility from learners" (Mouton & Blake, 1984, p. 5). Some distance education courses are designed around andragogical models where the teacher functions as a facilitator rather than an authority figure (Knowles, 1975). Regardless of the course design, the goal for the educational institution becomes increased efficiency, and this efficiency generally at the expense of personal interaction between teacher and student. Is there concern for the individual distance learner? Moore (1987, p. 63) asked, "should every distance education system make provision for some sort of . . . personal support for each individual learner in an otherwise mass education system?" The need for individualization of distance delivery courses was recognized by many distance educators

(Granger, 1990; Hammond & Collins, 1991). According to Granger (1990):

Given this growing consensus on the need for a focus on, and involvement of the individual learner . . . several questions immediately arise:

1. What needs to be known about individual learners?
 2. How can that information be gained in a way appropriate to the goals of the program?
 3. How then is this knowledge of individual learners to be used to facilitate learning?
 4. Who should use this information?
- (p. 164)

No studies were found addressing distance learners' characteristics and completion statistics. Coldeway (1986) referring to a request he made for such data to Canadian educators primarily at the postsecondary level, stated:

Although almost everyone on the list replied, most of the responses indicated that data were not available. In some cases [the data were] . . . not ready for circulation. However, in the majority of cases there were no data available and apparently little effort being made to encourage the collection of data reflecting learner characteristics and success. (p. 87)

While there has been much research conducted on learning styles of students (Andrews, 1990; Davis, 1988; Stice & Dunn, 1985; Stokes, 1989) no studies were found that addressed a distance delivery and learning styles combination as a major theme. The question of whether college television courses were more effective than

conventional courses for students with certain learning styles was asked by some schools in the late 1970s, but, "while these in-house studies made a good start, the studies were never completed" (Brock, 1990, p. 176).

Definition of Terms

In reviewing the literature, it became apparent that adult and distance educators had developed specific meaning for certain terms. In addition, other terms are defined to insure continuity in meaning through the presentation of the study.

Adult Learner: For the purpose of this research study, an adult learner is anyone over the age of 17 enrolled in an approved course at UAA.

Andragogy: Teaching methodology in which the teacher is a facilitator, providing guidance, direction and help in problem solving to the adult learner, while respecting previous learning experiences and providing for self-directed learning/empowerment (Knowles, 1980; Brookfield, 1986; Mezirow, 1984).

Distance Education: For the purpose of this research study, distance education as defined by Keegan (1988) will be any form of course delivery not involving physical face-to-face forms of education, and the students are usually taught as individuals and not in groups, i.e., traditional classroom courses.

Learning: According to Gagné (1965), "Learning is a change in human disposition or capability, which can be retained, and which is not simply ascribable to the process of growth" (p. 5).

Motivation: A physiological drive pushing a person to behave in a certain way to achieve a desired goal.

Extrinsic motivation refers to some reward or punishment being used which lies outside the task itself, i.e., fear of peer disapproval for failing or performing poorly.

Intrinsic motivation occurs when the task is seen as relevant and interesting in its own right, and includes the satisfaction of an inner need such as self-esteem or a need for achievement.

Pedagogy: Teaching methodology in which the teacher is the expert in a position of authority, determining the direction, rate, and character of learning (Mouton & Blake, 1984).

Section: The terms section and course are used interchangeably in this study to describe individual classroom and/or learning situations by enrollment category (i.e., section 021 of Psy 111 is a different course with a different instructor than section 191 of Psy 111 even though the university carries Psy 111 as a single course regardless in which sections it is taught).

Self-Directed Learning: Self-directed learning is the ability to take responsibility for and control over a

range of tasks and functions, where learners set their own pace and put a personal structure on their learning (Pratt, 1988).

CHAPTER II

REVIEW OF THE LITERATURE

Distance Education

As new methods of delivery of educational courses to non-traditional students became available, a need to better define the act of learning apart from face-to-face classroom teaching grew. Attempts to define distance education received considerable attention in adult education literature. The search for an exact definition has been the concern of numerous educators since the early 1970s (Garrison & Shale, 1987; Holmberg, 1986; Keegan, 1980; Moore, 1973; Shale, 1990). The definitions often overlap in some areas and contrast greatly in others. According to Garrison (1989):

The term distance education grew out of a need for a concept broader than correspondence study that could encompass new communications technology for the delivery of education at a distance. It is an over-arching concept that appears not to have any serious rivals for international usage. Although the term has become widely accepted, it does have inherent problems as to its exact meaning and scope.
(p. 2)

According to Holmberg (1986) a kind of formal recognition for the term distance education occurred in 1982 when the "International Council for Correspondence Education (ICCE) changed its name to the International Council for Distance Education (ICDE)" (p. 1). Yet exact

definitions of what distance education meant remained clouded, and the term was viewed by many as a generic term that covered any form of non-traditional education, including teaching correspondence education or correspondence study (Rumble & Keegan, 1982). Shale (1990) stated that:

Distance education is beset with a remarkable paradox -- it has asserted its existence, but it cannot define itself . . . if we no longer feel compelled to justify the uniqueness of distance education, there will no longer be a need to dwell on points of obvious difference . . . and regard distance education as education at a distance. (pp. 333-334)

Many educators view education and distance education as nearly the same; both need teachers (as a facilitator or as an active participant) and learners to function properly. And like Shale, some view distance education only as education-at-a-distance (Holmberg, 1986; Keegan, 1980, 1988, 1990). Garrison (1989) emphasizes the need for two-way communication between teacher and student(s) "for the purpose of facilitating and supporting the educational process" (p. 6). Holmberg (1977) acknowledged the role teachers play in distance education. He also emphasized the total educational system as an integral part of distance education. He defined distance education as pertaining to:

Various forms of study at all levels which are not under the continuous, immediate supervision of tutors present with their students in lecture rooms or on the same premises, but which,

nevertheless, benefit from the planning, guidance and tuition of a tutorial organization. Distance education includes all those teaching methods in which, because of the physical separateness of learners and teacher, the interactive, as well as the pre-active, phase of teaching is conducted through print, mechanical or electronic devices. (p. 9)

During an early attempt to define distance education, Keegan (1980) wrote that the physical separation of teacher and learner was necessary in all forms of distance education no matter what technology was used. Later he changed part of his definition to "the quasi-permanent separation of teacher and learner" (Keegan, 1988, p. 10). The one constant in defining distance education is the physical separation between teacher and learner using technical media as a delivery tool. However, educators claim that not only is distance education a departure from the face-to-face approach of teaching, but it removes the personal relationship between teacher and learner. The result is a limited possibility of analyzing students' needs, while the goal for the educational institution becomes increased efficiency at the expense of personal interaction (Keegan, 1980). Another result from the physical separation is the lack of personal contact with the teacher by the learner prior to the course. As Willis (1989) explained:

As a result [of no personal contact] the "grapevine" that typically informs students of an instructor's strengths, weaknesses, and personal characteristics is either limited or

non-existent. In addition, the instructor/student relationship often lacks the unifying realm of experience, either on a personal or academic basis, that results when teachers and students alike are a part of the same social or geographic community. (p. 46)

A definition for distance education, that appears to be accepted by most educators today, is one initially put forth by Keegan in 1980. The original definition contained six points. Keegan (1988), in answer to criticism of his definition (Garrison and Shale, 1987), refined his definition to the following five points:

1. the quasi-permanent separation of teacher and learner throughout the length of the learning process,
 2. the influence of an educational organization both in the planning and preparation of learning materials and in the provision of student support service,
 3. the use of technical media: print, audio, video, or computer to unite teacher and learner and to carry the content of the course,
 4. the provision of two-way communication so that the student may benefit from or even initiate dialogue, and
 5. the quasi-permanent absence of the learning group throughout the length of the learning process so that people are usually taught as individuals and not in groups, with the possibility of occasional meetings for both didactic and socialization purposes.
- (p. 10)

For the purposes of this study, Keegan's 1988 definition will be used.

Distance education, no matter how far teacher and learner are separated, requires the use of technology (Holmberg, 1977, 1986; Keegan, 1980, 1988, 1990; Moore,

1973). According to Murgatroyd and Woudstra (1989) the use of "new and emergent technologies will rapidly affect the way in which distance education systems function" (p. 11). Development of more effective distance education courses using new technologies will require development of new strategies for getting to know and understand the distance learner. Granger (1990) stated:

In order for distance educators to develop programs which serve individual learner most effectively, the individual learner must be understood within his or her context. By context is meant the complex of situational factors -- social, economic, psychological -- which can positively or negatively affect the learning experience and how the individual creates meaning. (p. 164)

Delivery Technology

Distance education courses require methods of delivery that, in one form or another, use communication technology (Holmberg, 1986). A teacher can present a lecture to hundreds of students in an auditorium and use nothing but the sound of his/her voice as the medium for delivery. Distance education, even in its simplest form, requires the use of printed material. In its most complex mode, distance education uses space-age technology in the form of satellites.

Communication technologies are divided into two groups -- interactive and non-interactive. Interactive technologies include those technologies that provide two-

way communication between teacher and learner. Non-interactive technologies are limited to one-way communication. Garrison (1989) divides the two groups as follows:

Two-Way Communication

1. Correspondence (First Generation)
 Message: Print
 Delivery Mode: Mail
2. Teleconferencing (Second Generation)
 Message: Audio/Video
 Delivery Mode: Telecommunications
3. Microprocessor Based (Third Generation)
 Message: Audio/Video/Alphanumeric
 Delivery Mode: Microprocessor

One-Way Communication

1. Print Material
2. Audio/Video Cassettes
3. Audiographics (May support two-way communication)
 -facsimile
 -slow-scan television
 -compressed video
 -telewriting
 -videotext
4. Laser Videodisc
5. Broadcast
 -radio
 -television (pp. 49-50)

The access to television by conventional broadcast methods, cable or satellite and the availability of video players in even the most remote corners of the earth make video technology a major player in distance education. Improvement in audio technologies has made possible audio conferencing as a delivery method. By linking two or more callers together via telephone lines, microwave transmissions, or satellite communications with one or more video technologies, two-way audio/teleconferencing

communications can be established. "Through the effective use of new technologies the differences between education and distance education will decrease" (Smith, 1988).

Television Effectiveness

Delivery of distance education by a growing diversity of technology is nothing new. Newspaper courses, paper and pencil correspondence courses, radio, audio tape, television, video tapes, computers, laser disks, satellite technology, and now the use of fiber optics to deliver both video and audio over telephone networks are most of the methods used. However, as Batey and Cowell (1986) pointed out:

Distance education must be separated in our minds from the technology which delivers it. We are tempted to romanticize technology -- and the more sophisticated or novel the technology is, the more this romanticizing occurs. Technology, in and of itself, cannot guarantee that learning takes place . . . What technology can do, and do very well, is deliver quickly and over great distances large amounts of varied information. Depending on what its results are being compared to it can often do this efficiently, effectively, and cheaply. (p. 31)

The effectiveness of video/television media as a method of course delivery has been the subject of many studies. Perhaps the most exhaustive examination conducted prior to 1967 was done by Chu and Schramm (1967). The results of 421 comparisons made in their study

between instructional television and conventional teaching found:

	<u>No significant differences</u>	<u>Television more effective</u>	<u>Conventional more effective</u>
Elementary	50	10	4
Secondary	82	24	16
College	152	22	28
Adults	24	7	2
	<u>308</u>	<u>63</u>	<u>50</u>

Although a statistical test for the significance of such differences would not be appropriate in this case, these findings consistently indicate that television instruction is apt to be more effective in teaching primary and secondary school students than college students. (p. 13).

A study conducted by Ritchie and Newby (1989) compared the effects between traditional university classroom lecture/discussion and live televised instruction on student performance, attitude, and student-teacher interaction. The study consisted of 26 students placed in three groups: (a) traditional classroom in the presence of an instructor, (b) TV broadcast studio classroom in the presence of an instructor (live studio), and (c) studio classroom with television monitors without audio conferencing (distance education, one-way).

The study concluded that the amount and type of teacher-student interaction did not have an impact on overall performance. More positive perceptions were reported by the students who interacted the most, that is, those in the traditional setting. Results of perceptions indicated that distance students experienced less

involvement, less ability to ask questions, and less overall enjoyment. However, a multiple-group comparison of participant achievement showed that the distance group scored significantly higher than the studio group, while those in the traditional group did not differ from either of the other two groups.

A similar study of 146 university students enrolled in economics courses showed similar results. The study, conducted by Grimes, Nielson, and Niss (1988), of distant students enrolled in a telecourse structured around 28 half-hour video lessons, off-campus students enrolled in a live-on-the-air telecourse with audio conferencing (two-way) and students enrolled in an on-campus economics course. All three courses covered the same traditional macro and micro aspects of economics. The study was conducted during the fall and spring semesters with a total of 17 in the distance courses, 35 in the off-campus courses, and 94 students in the on-campus (control) courses.

The distance group viewed the video lessons and completed all assignments and examinations through written correspondence. The students' had direct contact with the instructor via telephone (all phone calls were initiated by the student). The off-campus group viewed telecourse lessons once a week but also had access to locally produced and televised interactive sessions with the

instructor. The students had audio conferencing (two-way) via telephone or microwave hookup. Examinations were administered in person at local sites throughout the area. The control group met for 50-minutes three days per week in a traditional on-campus classroom setting.

Grimes, Nielsen, and Niss (1988) concluded that students in both telecourse groups learned more macroeconomics during the fall semester than students enrolled in the traditional lecture class. All student groups showed significant improvements in their understanding of macroeconomics during the spring semester. There were no significant differences between either of the distant learner groups exposed to the telecourse and the control group.

The review of the literature held that there was no significant difference in the amount of learning that took place in a distance education course served by video/television technology and that in a traditional on-campus course. Batey and Cowell (1986) said it best when they wrote: "Good teaching is good teaching, whether the teacher and learner are in close proximity or are at a great distance from each other" (p. 16).

Learning Styles

Everyone has a learning style. But what is a learning style? Smith (1982) defined learning style as

"the individual's characteristic way of processing information, feeling, and behaving in learning situations" (p. 24). Teachers were the first to note that some students seemed to thrive in certain learning environments. When they taught mathematics, using the chalk board, lecturing on theories, and using abstract examples, certain students perked up, caught on, and learned. Others sat back, folded their arms and became lost in the "mumble-jumble" occurring before them. Yet these same students who became lost when they were lectured to seemed to come alive when they had the opportunity to get their hands on an object, take it apart, draw it, or discuss it with teacher and classmates.

As people function on a day-to-day basis they use their minds and senses in consistent ways that they have developed to get along in their world. "We have acquired preferred patterns of perceiving, remembering, thinking, and problem solving" (Smith, 1982, p. 61). These acquired characteristics form a complex cognitive strategy for dealing with the day-to-day demands. These characteristics "help pattern our behavior, and they constitute a major component of learning style" (Smith, 1982, p. 61).

In the mid 1940s, Witkin and his associates began a long-term research project to determine how people perceived their environment. From this research came a

concept regarding people's tendencies to perceive the environment in an analytical (field-independent) as opposed to a global (field-dependent) way (Witkin & Goodenough, 1981). Witkin found the cognitive style "a potent factor in academic choices and success, vocational preferences, and how students learn and interact with teachers" (Smith, 1982, p. 62).

Some people prefer being directed at every stage of learning, while others prefer to choose their own pace and direction, with little structure and control (Smith, 1982). People differ in their desires for the amount of light, sound, location and physical conditions of learning (Dunn, Beaudry, & Klavas, 1989). Research has shown these individual approaches to learning must be addressed if optimum learning is to take place (Stice & Dunn, 1985). These individual preferences and dispositions to learning have provided a basis for a large body of research procedures referred to as methods of measuring learning styles through multi-dimensional analysis inventories (Karrer, 1988). There are several different style inventories that have been developed that approach the concept of individual differences on different levels. Below is an overview of the approaches to style presented by Guild and Garger (1988, p. 9):

Measures of style

COGNITION (perceiving, finding out, getting information) sensing/intuition: Jung, Myers-Briggs field dependent/field independent: Witkin abstract/concrete: Gregorc, Kolb and McCarthy visual, auditory, kinesthetic, tactile: Barbe and Swassing, Dunn and Dunn

CONCEPTUALIZATION (thinking, forming ideas, processing, memory) introvert/extrovert: Jung, Myers-Briggs reflective observation/active experimentation: Kolb and McCarthy random/sequential: Gregorc

AFFECT (feelings, emotional response, motivation, values, judgments) feeler/thinker: Jung, Myers-Briggs effect of temperature, light, food, time of day, sound, design: Dunn and Dunn

BEHAVIOR - manifestations of all of the above-mentioned characteristics

Teacher Learning Style

If there are individual learning styles then it follows that there are individual teaching styles. If some teachers prefer to learn by "observing and listening, then reflecting on their observations, those same persons would tend to teach by telling -- with children acting as passive receivers" (Stice & Dunn, 1985, p. 7). Johnson (1988) stated that most teachers are a blend of two or more styles. "This helps most of us to accommodate and adjust to different kinds of learners, no matter what style dominates our teaching" (p. 31).

Some educators have expressed concern that a mismatch between learning and teaching styles may be detrimental to

some learners (Dunn, Beaudry, & Klavas, 1989). However, others feel that concern for individual learning style may lead to unnecessary problems if teachers attempt to adapt instruction differently for all their students (Stice & Dunn, 1985). This concern for the possible detrimental effect on the learner of mismatched styles has caused Entwistle (1983) to question if teachers do adopt extreme methods of teaching in one style:

The implication for education is presumably that teachers need to provide opportunities for students to learn in a way which suits their preferred style of learning. If teachers adopt too extreme a method of teaching, perhaps reflecting their own learning style, one group of students will find the approach alien to their way of learning. But do teachers adopt extreme approaches which might lead to severe mismatching? (p. 95)

A teacher's success is dependent upon interaction with students, each of whom has distinctive learning preferences. Awareness of learning preference provides an opportunity for teachers to provide a mix of activities, some of which challenge the student to engage in learning situations that are less comfortable, but expand their experience in learning how to learn (Davis, 1988). According to Smith (1982) the desirability of always seeking to match teaching style to learning style is questioned:

While a prolonged mismatch is clearly undesirable, some educators feel a responsibility to expose learners for short periods to instructors, approaches,

environments, and methodologies that are not in line with learners preferences and strengths. Some feel that this will help people to accommodate to situations in which they have no choice but to accommodate (i.e., to develop flexibility). (p. 71)

Smith (1982), on a review of research by Cronbach and Snow, observed that the research found some instructional variations to be bad for a fraction of the learners with some treatments benefiting one subgroup while producing negative effects for another. A study by Davis (1988) that matched teaching approach of seven instructors with learning styles of 196 entering students concluded that when teacher and student were matched, not matched or partially matched by learning style, there were no significant differences in course grades for student.

Learning Style Assessment Inventories

Four primary sets of learning style assessment inventories were identified for consideration as research tools in this study. The inventories and their authors were: (a) Learning Style Models by R. Dunn, K. Dunn, and G. E. Price; (b) Learning Style Inventory by A. A. Canfield; (c) Myers-Briggs Type Indicator by K. C. Briggs and I. B. Myers; and (d) Learning Style Inventory by D. A. Kolb.

Dunn, Dunn, and Price

Dunn, Dunn and Price (1985) list five stimuli: (a) environmental, (b) emotional, (c) sociological, (d) physical, (e) psychological, and 21 elements grouped within the stimuli that they claim affect learning style. Most of the research investigating these stimuli have focused on grades K-12 (ASCD, 1990). The instrument consists of 104 true-false statements. According to Karrer (1988) the learning style is defined in four pervasive learning conditions:

- Immediate environment (with the elements sound, light, temperature, and design);
 - own emotionality (with the elements motivation, persistence, responsibility, and structure);
 - sociological needs (with the elements self-oriented, colleague-oriented, authority oriented, pair-oriented, team-oriented, and varied), and
 - physical requirements (with the elements perceptual, intake, time, and mobility).
- (p. 4)

The Dunn, Dunn and Price instrument was designed for upper elementary school students but has been used with high school and college students. In listing the instrument's shortcomings, Karrer (1988) stated that the 104-item true-false response took time to administer, and that some research had found that the inventory did not measure what it intended to.

Canfield

Canfield developed his self-report Learning Style Inventory (LSI) in 1972 to measure variables that appeared to affect learning. According to Boylan (1989) Canfield's instrument "is the only one on the market that emphasizes the affective dimensions of learning as opposed to the cognitive dimensions" (p. 1). The Canfield LSI is designed primarily for use with adults and measures four areas of student learning preference: (a) conditions of learning, (b) the content of learning, (c) the mode of learning, and (d) students expectations in a learning situation. One reviewer of the Canfield LSI (Sewall, 1986) stated that the scales developed by Canfield would be useful to adult educators who were attempting to match learners' preferences for a specific learning environment with an instructional method. Canfield's LSI requires approximately 15 minutes to administer.

Sewall (1986), in his critical review of Canfield's LSI stated:

In my opinion, the only redeeming aspect of the Learning Styles Inventory is its face validity. The description of the scales developed by Canfield appears to be potentially useful to educators and administrators in adult education who are seeking ways to better match a learner's preferences for a particular learning environment with an instructional method. The single published study which reports reliability coefficients suggests that some of the scales may be reliable. (p. 45)

Myers-Briggs

Another self-report inventory is the Myers-Briggs Type Indicator (Briggs & Myers, 1976) that provides the individual learners with a profile on four subscale pairs: (a) extraversion/introversion (E/I), (b) sensing/intuition (S/N), (c) thinking/feeling (T/F), and (d) judging/perception (J/P). The Myers-Briggs Type Indicator (MBTI) has been used with high school students and adult learners in post-secondary schools. One reviewer of the MBTI (Sewall, 1986) indicated that additional information is needed before the "indicator's results can be used reliably and validly with individuals to make predictions about . . . preferred learning style" (p. 19). The MBTI has 126 forced-choice items, requiring approximately 50-minutes to administer.

Sewall (1986), who conducted an in-depth analysis of the MBTI and reviewed research findings, found the MBTI to be:

One of the better instruments currently available to assess learning style type. However, while the Indicator appears to be a good instrument in terms of its theoretical and empirical bases I would be reluctant to use it in lieu of other instruments which provide more direct measures of aptitude, career interests, satisfaction, etc. At the present time too little is known about how Myers-Briggs constructs can be applied to assist an individual with educational and career decisions. (pp. 18-19)

Kolb

The experiential learning theory by Kolb (1984) resulted in the design of a Learning Style Inventory (LSI) that measures learners' strengths and weaknesses in four stages of the learning process: (a) concrete experience (CE) (feeling); (b) reflective observation (RO) (watching); (c) abstract conceptualization (AC) (thinking) and (d) active experimentation (AE) (doing). The LSI consists of 12 sentences, each with four endings which are rank ordered by the student. The resulting scores indicate which of four basic learning styles the learner displays: (a) convergent, (b) divergent, (c) assimilation, or (d) accommodative. Kolb's LSI requires approximately 10 minutes to administer. The LSI can be administered individually or in groups and "can be easily modified to include only the instructions and the test protocol . . . tests can then be scored later by the examiner" (Sewall, 1986, p. 20).

Sewall (1986) performed a critique on Kolb's LSI and reviewed much of the research that used Kolb's LSI up to that time. In presenting his personal decisions regarding the use of the LSI, he stated:

The LSI has been used extensively in management education, medical education and most recently has been applied to numerous adult and continuing education situations. In many educational applications, I suspect that the ability of the LSI to accurately identify

preferred learning style or basic personality characteristics is never called into question. However the information reviewed here does seem to raise some serious doubts about the appropriate use of the Inventory. While both the reliability and validity of the LSI is in question, several authors have suggested that the evidence does provide support for the learning model itself . . . In the opinion of this reviewer, the unreliability and lack of evidence for either construct and predictive validity suggests that the LSI could produce very misleading results and needs to be studied much more carefully before it should be used in any setting. (pp. 36-37)

Another reviewer of research using Kolb's LSI, Tamaoka (1985), found that it was possible to generalize four points:

- (1) Kolb theoretically developed the Learning Styles Inventory according to an experimental learning model.
- (2) Kolb's Learning Styles Inventory may indicate students's learning style on the basis of the students' subject majors.
- (3) Learning styles assessed by Kolb's Learning Style Inventory may be relatively stable over a fairly long time.
- (4) Kolb's Learning Styles Inventory will provide only the overall learning style of individuals. (pp. 17-18)

Andragogy

In the traditional classroom, the teacher attempts to control what, where, when and how learning will take place, and this relationship is known as a pedagogical relationship. Since distance education, according to Keegan (1988), separates the teacher and learner throughout the length of the learning process the direct

influence the teacher has on the student is lessened and the roll of the teacher changes. When the learner is an adult, the roll change may be from a pedagogical to a andragogical relationship.

The term "andragogy" was first introduced by Knowles in 1970. Since that time it has almost become synonymous with adult education. Pratt (1988) summed up Knowles definition of andragogy as:

(a) a set of assumptions about adults as learners; and (b) a series of recommendations for the planning, management, and evaluation of adult learning. In turn, these assumptions are based on two presuppositions: first, the intrinsic to adulthood is a sense of self-directedness; and second that, in congruence with this self-directedness, andragogical practice is a collaborative venture which involves the learner in most or all instructional functions.
(p. 160)

Other educators also viewed andragogy as an organized effort that assists adults to learn in a way that enhances their capacity to function as self-directed learners and realize self-actualization (Brookfield, 1986; Mezirow, 1984; Tough, 1979).

In contrast to pedagogy where the teacher is an authority figure over the student attempting to determine what, where, when and how learning will take place, andragogy places the instructor in the role of facilitator (Mouton, & Blake, 1984). Pratt (1988) argued that "both andragogy and pedagogy may partly be defined via the nature of relationships that develop out of situational

variations and the characteristics of learner dependency" (p. 164).

The Adult Self-Directed Learner and Learner Readiness

There are many definitions of adulthood, ranging from age, social role, or psychological maturity. In an attempt to precisely define an adult, Candy (1991) held that those definitions concerned with psychological maturity are potentially the most promising:

Some of these definitions portray adulthood as the development or acquisition of an interrelated set of psychological characteristics, usually including independence, autonomy, or freedom from the influence of others. (p. 45)

Being in control of one's own destiny (freedom from the influence of others) is considered by most adults as an indicator of adulthood. In education, control of one's own learning is called "self-directed learning." To some, this concept of self-directedness may be manifested before puberty (Della-Dora & Blanchard, 1979). Yet in others it may never become fully developed. According to Della-Dora and Blanchard (1979):

Self-directed learning refers to characteristics of schooling which should distinguish education in a democratic society from schooling in autocratic societies. In a democratic society, students need to have opportunities to learn how to choose what is to be learned, how it is to be learned, when it is to be learned, and how to evaluate their own progress. (p. 1)

Concepts of self-direction as offered above are often idealized views of adulthood and, according to Tough (1979), painted a picture of adult learners as "self-directing organisms with initiative, intention, choices, freedom, energy and responsibility" (p. 5). Hammond and Collins (1991) recognized that "learners may lack self-discipline. Others may have the ability to manage their learning, but lack the motivation, commitment or self-discipline to do so effectively" (p. 155).

The transition from adolescence to adulthood brings many changes to humans, among which is the diminishing of dependency. "When we are born we are totally dependent personalities . . . but as we grow and mature we develop an increasingly deep psychological need to be independent" (Knowles, 1984, p. 14). Knowles went on to say that learners who use this independence to take the initiative in their own learning "learn more things, and learn better, than those who sit at the feet of teachers passively waiting to be taught" (p. 14).

Many adult educators indicated a belief that self-directed learning is an integral part of adult learning (Brookfield, 1986; Knowles, 1980). Mezirow (1984) advocates that adult education is based on the premise that it is to "assist adults to learn in a way that enhances their capability to function as self-directed learners" (p. 21).

Self-direction in learning is not considered by some to be a "have/have not" ability, but rather a continuum that grows and changes as the adult's experience in both school and life expands (Guglielmino, 1989; Kolb, 1984). Also self-direction in learning is not seen as occurring only with those who are not in a formal education setting, but can occur in a variety of settings. Guglielmino, (1977/78) explained:

Self-direction in learning can occur in a wide variety of situations, ranging from a teacher-directed classroom to self-planned and self-conducted learning projects. Although certain learning situations are more conducive to self-direction in learning than are others, it is the personal characteristics of the learner - including his[/her] attitudes, his[/her] values, and his[/her] abilities - which ultimately determine whether self-directed learning will take place in a given learning situation.
(p. 34)

If self-directed learners have the ability to take responsibility and control over their own learning and can plan and manage their learning time (Guglielmino, 1977/78), then they should be successful completers in distance education courses (Gibson, 1990).

Self-Directed Learning Readiness Scale

Guglielmino's Self-Directed Learning Readiness Scale (SDLRS) consists of a 58-item instrument self-assessed on a Likert scale and is designed to assess individuals' self-perception of their skills and attitudes associated

with "self-directed learning." The SDLRS was developed and refined through a three-round Delphi committee of fourteen adult educators considered to be experts in "self-directed learning" (Herbert A. Alf, B. Frank Brown, Edward G. Buffie, Arthur W. Chickering, Patricia M. Coolican, Gerald T. Gleason, Winslow R. Hatch, Cyril O. Houle (first two round only), Malcom S. Knowles, Wilbert J. McKeachie, Barry R. Morstain, Mary M. Thompson, Allen M. Tough, and Morris Weitman) (Guglielmino, 1977/78). These Delphi members were asked by Guglielmino to help arrive at a consensus of "the characteristics of the self-directed learner which appear to be most closely related to his self-direction in learning" (Guglielmino, 1977/78, p. 92). The original instrument developed and tested by Guglielmino consisted of 41 items. The original items were revised and "17 additional items were added after the initial field test" (Guglielmino, 1989, p. 238). The current 58-item instrument was administered in 1978, and a factor analysis was carried out with the data collected. Eight factors were identified (Guglielmino, 1989):

- Factor 1: Self concept as an effective learner;
- Factor 2: Openness to learning opportunities;
- Factor 3: Initiative and independence in learning;
- Factor 4: Acceptance of responsibility for one's own learning;
- Factor 5: Love of learning;

Factor 6: Creativity;

Factor 7: Ability to use basic study skills and
problem-solving skills;

Factor 8: Positive orientation to the future.

According to Guglielmino, research supports the validity and reliability of the SDLRS. "Reliability estimates have always been high, and the Pearson split-half reliability estimate in the most recent data analysis (N= 3151) was .94" (Guglielmino, 1989, p. 238).

Some educators have questioned the reliability and validity of the eight factors, and whether they do measure self-direction in learning (Bonham, 1991; Field, 1989), while others hold that it is a valid and reliable instrument to measure self-directed learning (Long, 1989; McCune, 1989). According to Guglielmino and Guglielmino (1982), the major uses of the SDLRS "are in the areas of prediction and diagnosis. For example, it can be used as a screening tool for programs involving self-directed study, such as correspondence courses, programs for the gifted, and independent study" (p. 11).

The SDLRS has been designed for a variety of audiences. SDLRS-A was designed for the general adult population, and was selected for this research. Other SDLRS versions were designed for adults with low reading levels or non-native English speakers, for business, and for children (Guglielmino, 1992).

Motivation

Motivation was seen by some psychologist as a physiological drive that causes a person to behave in a certain way (Mouton & Blake, 1984). Others saw motivation as a driving force that caused a person to act in ways which depend on what they want to achieve, "to utilize his talents, to desire self-fulfillment . . . and to become an effective member of society" (Gagné, 1965, p. 207).

Gagné (1965) considered student motivation to be among the highest priorities for teachers in the classroom. Other educators include student needs, such as light, sound (quiet or noise), peer groups, food intake, good health, etc., as important priorities for teacher consideration (Dunn, Dunn, & Price, 1985). "There is a direct link between how students learn and their level of motivation in the classroom. If a student's needs are met, motivation for learning is increased" (Kemp, 1988, p. 30). Also the student needs to have influence over his or her destiny in the classroom. According the Hammond and Collins (1991) learners who:

had a chance to analyze their situations, define learning priorities, and identify their own strengths and weaknesses before a course, and who tailor their learning to build on those strengths and overcome those weaknesses tend to be much more motivated than learners who are expected to passively accept and absorb what an educator presents to them. (p. 63)

Measures of students' success might be the level of their motivation. A student who succeeds in school, as measured by high "A" grade levels, often are defined as being highly motivated. Entwistle (1983) said that motivation was "a dimension which is commonly used to 'explain' different levels of attainment" (p. 199).

Extrinsic motivation was fostered when some reward or punishment was offered. This enticement was outside the task itself and could take the form of a need for qualification or fear of failure. Intrinsic motivation was within the person and often resulted in fulfilling an inner need such as self-esteem, need for success, or interest in what was being learned (Entwistle, 1983; Mouton & Blake, 1984).

Some learners found the subject matter itself interesting enough to stimulate the desire to learn -- learning for learning's sake. However, many learners will needed other sources of motivation and it was the teacher who most often provided these sources (Gagné, 1965; Hammond & Collins, 1991; Mouton & Blake, 1984). According to Gagné (1965):

The present description of educational decisions leads to the view that motivating should probably be considered the primary task of the teacher . . . the student must be motivated to enter into the learning situation. Motivation to achieve must be established that springs from within the individual. (p. 247-248)

To provide syllabi, video tapes, and other resources is not enough; the student must be motivated to learn what they need to know. "At the heart of this issue lies the topic of motivation: unless learners are adequately motivated they will not perform effectively, nor will they find learning rewarding or satisfying" (Mouton & Blake, 1984, p. 1).

Most distance education courses are designed around pedagogical models, where the "teacher" dictates the direction, rate, and character of learning. Although some distance education courses are designed around andragogical models where the "teacher" functions as a facilitator rather than an authority figure (Knowles, 1980), it was the responsibility of the teacher to insure that the course was designed to assist the student in motivation toward successful completion (Mouton & Blake, 1984).

Adult Learning and Motivation

The rapid changes in society as a result of technological advances created a need for adults to seek out training on a continuum (Cropley, 1976). According to Zemke and Zemke (1981) one reason adults sought learning experiences was to "cope with specific life-change events. Marriage, divorce, a new job . . . losing a loved one and moving to a new city are examples" (p. 45).

The reasons adult learners entered a trade school, community college or a university were varied and many. Reasons included those of self improvement, a new skill, a certificate, a degree, family expectations, or just for the love of learning. Whatever the reason, adult education's primary goal according to Brookfield (1985) was to "assist adults in their quest for a sense of control in their own lives, within their interpersonal relationships, and with regard to the social forms and structures within which they live" (p. 46).

Houle (1961) divided adult learners into three sub-groups: goal-oriented, activity-oriented, and learning-oriented. Students who sought new skills, certificates or degrees fall into the goal-oriented. Goal-oriented learners were intrinsically motivated, having realized a need or identified an interest. The motivation of an activity-oriented adult learner fell more into the extrinsic category, where they were seeking social life, approval of friends or family. The learning-oriented adult learner sought knowledge for knowledge's sake. Whatever the motives behind an adult learner entering a school system, some form of motivation already existed and it was the job of the teacher to foster, encourage, and stimulate the learner's motives (Hammond, & Collins, 1991).

CHAPTER III

METHODOLOGY

The main focus of this study was to determine if there were differences between successful adult learners of distance education courses and traditional classroom courses. To determine if a significant relationship existed five research questions were identified to guide this study:

1. Is there a difference in the percentage of successful completers of distance education courses and traditional classroom courses?
2. Is there a difference in individual learning styles of students who participate in distance education course and those who participate in traditional classroom courses?
3. Is there a difference in individual readiness for self-directed learning of students of distance education courses and students of traditional classroom courses?
4. Is there a difference in individual student motivation for distance education courses and traditional classroom courses?
5. Is there a difference in students' personal profile for students enrolled in distance

education courses and traditional classroom courses?

Design

The data collected in this descriptive research project came from Psychology 111, a distance education course and traditional classroom course at the University of Alaska Anchorage. Three survey instruments were used to collect the data as follows: Kolb's Learning Style Inventory (LSI) (Appendix A); Guglielmino's Self-Directed Learning Readiness Scale (SDLRS) (Appendix B); and a General Questionnaire developed by a panel of experts in adult education to assess the adult learners' motivation for taking the course, and develop a personal profile on all enrollees (Appendix C).

Instruments

Kolb's LSI

Kolb's LSI was selected as a research tool for this study because it reflected both the cognitive and conceptual components of learning style, was based upon experiential learning, and best fit the adult learner who brought with them a broad range of life experiences (Boylan, 1989; Kolb, 1984). Kolb's LSI was also quite simple to use, with the students rank ordering responses

to twelve sentences. The LSI could be completed in about 10 minutes thus reducing the possibility of placing too much time demand on the student since they were also to complete two other instruments for this study.

According to Kolb and Smith (1986), the LSI reveals individual's strengths and weaknesses during the learning process. It identifies the individuals learning cycle based upon four modes:

1. **Concrete Experience (CE):** This stage of the learning cycle emphasizes personal involvement with people in everyday situations. In this stage, the learner would tend to rely more on his or her feelings than on a systematic approach to problems and situations. In a learning situation, the learner would rely more on his or her ability to be open-minded and adaptable to change.
2. **Reflective Observation (RO):** In this stage of the learning cycle, people understand ideas and situations from different points of view. In a learning situation the learner would rely on patience, objectivity, and careful judgment but would not necessarily take any action. The learner would rely on his or her own thoughts and feelings to form opinions.
3. **Abstract Conceptualization (AC):** In this stage, learning involves using logic and ideas, rather than

feelings, to understand problems or situations. Typically, the learner would rely on systematic planning and develop theories and ideas to solve problems.

4. Active Experimentation (AE): Learning in this stage takes an active form -- experimenting with influencing or changing situations. The learner would have a practical approach and a concern with what really works, as opposed to watching a situation. The learner values getting things done and seeing the results of his or her influence and ingenuity. (p. 5)

The combination of these four modes within the learning cycle identifies the learner as having a specific learning style: (a) Diverger, (b) Assimilator, (c) Converger, or (d) Accommodator.

The instrument consists of 12 sentences; each sentence has four endings. The learner rank orders the sentence endings according to how well he or she think each one fits with how he or she would go about learning. Ranking goes from a "4" for the sentence ending that best describes how the learner learns to a "1" that indicates a sentence ending that seems least like the way the learner learns. The four columns are totaled and CE is subtracted from AC to get a combination score of AC-CE, i.e., $(AC-CE) = AC-CE$; RO is then subtracted from AE to get a

combination score of AE-RO, i.e., $(AE-RO) = AE-RO$. A positive score on the AC - CE scale indicates a more abstract score. A negative score on the AC - CE scale indicates a more concrete score. Likewise a positive or negative score on the AE - RO scale indicates a score either more active or more reflective.

By plotting the two combination scores on a Learning-Style Type Grid (Appendix A) the learners can find which of the four learning styles they fall into. A computer program was designed and written that tallied the scores, determined the learning style, and printed the results for distribution to students requesting them (Appendix D).

Reliability of the LSI as addressed in Kolb and Smith's User's Guide for the Learning Style Inventory (1986, p. 81), based on a sample of 1,446 adults between the ages of 18 and 60, using Cronbach's standardized scale Alpha was reported as: CE = .82, RO = .73, AC = .83, AE = .78, AC-CE = .88, and AE-RO = .81. The combination scores using Tukey's test showed almost perfect additivity (1.0).

Guglielmino's Self-Directed Learning Readiness Scale

The SDLRS is a 58-item questionnaire using a Likert scale with questions concerning learning preferences and attitudes toward learning. In scoring, 17 items are selected for one treatment (reversed), and the rest of the items are totaled directly. The total score is a range

between 58 and 290. The average score for adults is 214 (Guglielmino, 1992) with a standard deviation of 25.59. High scores indicate the learners' preference to determine their own learning needs and plan and implement their own learning.

Guglielmino estimated a reliability of .87 (Guglielmino, 1992). In addition to the overall score, eight factors of self-directed learning were identified: openness to learning opportunities, self-concept as an effective learner, initiative and independence in learning, informed acceptance of responsibilities for one's own learning, love of learning, creativity, future orientation, and ability to use basic study and problem solving skills.

General Questionnaire

The General Questionnaire was developed to collect information that would contribute to a personal profile of the adult learners of this study. The purpose of the personal profile was for comparison of adult learners in distance education courses and adult learners in traditional on campus courses. Questions were included in the questionnaire that provided information on the adult learners motivation for taking the courses, i.e., degree requirement, self-betterment, etc. The initial questionnaire was designed with the cooperation of the

Director of Distance Education of the College of Community and Continuing Education (CCCE), University of Alaska Anchorage (UAA). The questionnaire was originally tested in the collection of 382 CCCE distance learners' personal profiles. The data collected were used to determine the homogeneity of adult distance learners and traditional on-campus students. In addition, data collected indicated reasons adult learners took the distance delivery courses and was used for future planning of course offerings by CCCE. The questionnaire was revised, changing some questions to better reflect the type of data desired. The revised questionnaire was reviewed by a panel of experts of adult learning, psychology, and distance education (Appendix E). Modifications were made to the questionnaire based upon their recommendations. The revised questionnaire was field-tested by ten students enrolled in distance education courses at UAA. The results of the field test were then reviewed by the researcher and the Director of Distance Education, University of Alaska Anchorage, who then determined that it provided the desired data.

Hypotheses

The following sets of null hypotheses were developed to test the five research questions forming the goals of this research study. A .05 level of statistical

significance (alpha level) was the basis for supporting or rejecting the hypotheses using Chi-square, t-tests, Analysis of Variance (ANOVA), and multiple comparison - Scheffé Test, to determine where and if there was a significant difference.

Goal 1: Determine if there is a difference in the percentage of successful completers between distance education courses and traditional classroom courses.

H 1.1: There is no statistically significant difference between the percentage of successful completion by distance education students as compared to traditional classroom students.

Goal 2: Determine what part individual learning style, as identified by Kolb's LSI, plays in successful completion of distance education courses as compared to traditional classroom courses.

H 2.1: Individual learning styles as identified by Kolb's LSI do not play a statistically significant part in successful course completion of distance education courses as compared to traditional classroom courses.

Goal 3: Using Guglielmino's SDRLS determine what role individual self-directed learning readiness plays in the successful completion of distance education courses as compared to traditional classroom courses.

H 3.1: Individual self-directed learning readiness, as indicated by Guglielmino's SDRLS, has no statistically significant effect on distance learners' successful course completion as compared to the successful course completion of traditional classroom students.

Goal 4: Determine what effect individual learners' motivation, as determined by the general questionnaire, have upon successful completion of distance education courses as compared to the successful completion of traditional classroom courses.

H 4.1: Individual learners' motivation, as determined by the general questionnaire, has no statistically significant effect upon successful completion of a distance education course as compared to the successful completion of a traditional classroom course.

Goal 5: Determine if students who enroll in distance education courses differ significantly in personal profile from traditional classroom students as indicated by the general questionnaire.

H 5.1: There is no statistically significant personal profile difference in students enrolled in distance education course as

compared to students in traditional classroom courses.

The Dependent Variable

The dependent variable for the research study was the adult learner's success (pass/fail) in the distance delivery or traditional classroom course. For the purpose of this study grades "A to D" was considered successful completion (pass) and a grade of "F" was considered failing (no-pass).

Population

During the Spring 1993 Semester the University of Alaska Anchorage (UAA) College of Arts and Sciences offered Psychology 111 (PSY 111) for the first time as part of UAA's LiveNet television broadcast series. In addition, PSY 111 was offered as a course on an extension campus in a traditional classroom setting and as a Distance Education Video/Telecourse. The majority of the enrollment in these courses were adult students who lived in the Anchorage/Eagle River, Alaska, area. However, a number of students lived in remote areas (referred to as the "bush").

The LiveNet series was presented by one instructor using closed circuit and cable television broadcast facilities. Several cameras were used to provide

different angles of the instructor and the participating class. Special overhead camera and video equipment provided media presentations. Two-way audio conferencing was available to each of the four sections of students involved. Of the four sections, one participated in the studio with the instructor, two sections viewed the closed circuit broadcasts from monitoring rooms on campus, while the last section viewed the cable broadcasts from their home or dormitory rooms. The broadcasts were aired Mondays and Wednesdays from 10:00 a.m. to 11:15 a.m. The students were offered free choice of which section they wanted. The sections were:

Section 021 -- offered students the opportunity to participate in the live studio/classroom conducted from the campus television studio. A total of 65 students enrolled.

Sections 001 and 041 -- offered students the opportunity to view the closed circuit broadcasts from monitoring sites on campus. Two-way audio conferencing was available. A total of 90 students enrolled in these two sections.

Section 141 -- offered students the opportunity to view the cable broadcasts from any location they chose, i.e., their home or dormitory. Two-way audio conferencing was available. A total of 11 students enrolled.

Examinations for the four sections were administered by teaching assistants in the monitoring rooms and by the instructor in the broadcast studio. Students in section 141 were given their choice of locations to participate in testing.

The community of Eagle River is located approximately 11 miles to the northeast of UAA's Anchorage campus. The Eagle River campus provides many UAA courses to the residents of Eagle River and other communities located farther to the northeast. PSY 111 (Section 191) was offered at this extension campus in the traditional classroom environment. The course was conducted by an adjunct instructor on Monday and Wednesday evenings from 7:00 p.m. to 9:00 p.m. A total of 26 students enrolled.

PSY 111 (Section 241) was offered as a distance education televideo course by Distance Education Services, College of Community and Continuing Education, UAA. The course was facilitated by a UAA instructor. The course televised was the Annenberg/CPS Project series Discovering Psychology, consisting of 26 thirty minute episodes. The video was televised on Wednesdays from 6:00 a.m. to 7:00 a.m. on public education channel 7 carried both on cable and standard broadcast in the Anchorage/Eagle River area. The series was also televised on cable channel 42, UAA's Education Channel, Mondays, 1:00 p.m. to 2:00 p.m. and repeated on Tuesdays, 8:00 p.m. to 9:00 p.m. VHS video

cassettes were provided for students living in the bush. Direct contact with the instructor was through student initiated phone calls on a toll free 800 number. Examinations were given at pre-designated sites in the viewing area. Distant students were administered the test through the mail. A total of 39 students enrolled.

Data Collection Methods

Permission was obtained from the College of Arts and Science, and the College of Community and Continuing Education to include the three survey instruments as part of a package mailed to the students. A letter (Appendix F) explaining the purpose and intent of the research study was included, as well as a Letter of Agreement (Appendix G) to be signed by the adult learner consenting to participate in the study and for release of their final standing (pass/no-pass) to the researcher. To insure confidentiality, each learner's package carried a Unique Identification Code (UIC). This UIC was the only indicator of identity. Once the student's final standing was received and entered in the data base, all indications of UIC/Learner name were removed from all sources. Learners' names were never entered into a database, report, summary, or written statement.

CHAPTER IV

FINDINGS

This chapter will present the findings as related to the five research questions of the study. The five research questions were as follows:

1. Is there a difference in the percentage of successful completers of distance education courses and traditional classroom courses?
2. Is there a difference in individual learning styles of students who participate in distance education course and those who participate in traditional classroom courses?
3. Is there a difference in individual readiness for self-directed learning of students of distance education courses and students of traditional classroom courses?
4. Is there a difference in individual student motivation for distance education courses and traditional classroom courses?
5. Is there a difference in students' personal profile for students enrolled in distance education courses and traditional classroom courses?

Demographics of Participants

A brief discussion of general demographic information will be provide. Objective five will seek to test various demographic characteristics against the Pass/No-Pass rating of study participants to determine the statistical significant of the demographic items analyzed. However, to understand the data presented for research questions one through four a general discussion of the demographic information was necessary at this point.

A total of 231 surveys were sent to students enrolled in the six Psychology 111 sections. A follow up mailing to those who had not responded was done three weeks before the end of the semester. A total 135 students responded to the survey, however 3 were rejected as incomplete and therefore unusable, giving a total of 132 (57%) participants. Of the total enrollment of 231 (Table 1), 179 received passing grades (Table 2), 39 students failed (Table 3), 14 withdrew (Table 4), and 2 audited the courses (these audits were not included in any tabulations unless otherwise indicated). Of the 132 participating students 120 received passing grades, 10 failed and 2 withdrew. Of the 231 student total, three incomplete "I" grades were given but no student participating in the study received an "I."

TABLE 1
Enrollment and Participation by Section

Section	Number Total Enrollment*	Number Participating In Study**	Percentage Participating In Study
021	65	44	67.7%
191	26	14	53.8%
001	68	31	47.8%
041	22	11	50.0%
141	11	7	63.6%
241	39	25	64.1%
Total	231	132	57.1%

*Includes total of 11 withdrawals and 2 audits

** Includes total of 2 withdrawals

TABLE 2
Passing Grades Given by Section

Sec.	Passing Grade Total Enrollment	% Passing Total Enrollment*	Passing Grade Students In Study	% Passing Students In Study**
021	61	93.8%	42	95.5%**
191	19	73.1%	13	92.9%
001	51	75.0%	28	90.3%
041	15	68.2%	10	90.9%
141	9	81.8%	6	85.7%**
241	24	61.5%	21	84.0%
Total	179	77.5%	120	90.9%

* Percentages computed against total enrollment including withdrawals and audits

** Percentage computed against total participating students including 1 withdrawal

TABLE 3
F's Given by Section

Sec.	Number F's Total Enrollment	% F's* Total Enrollment	Number F's Participating In Study	%F's** Participating In Study
021	2	3.1%	1	2.4%
191	5	19.2%	1	7.1%
001	14	20.6%	3	9.6%
041	6	27.3%	1	9.1%
141	1	9.1%	0	0.0%
241	11	28.2%	4	16.0%
Total	39	16.9%	10	7.6%

*Percentage computed against total enrollment including withdrawals and audits

**Percentage computed against total participants including 1 withdrawal

TABLE 4
Withdrawals by Section

Sec.	Number W's Total Enrollment	% W's Total Enrollment	Number W's Participating In Study	%W's Participating In Study
021	1	1.5%	1	2.3%
191	2	7.7%	0	0.0%
001	2	2.9%	0	0.0%
041	1	4.5%	0	0.0%
141	1	9.1%	1	14.3%
241	4	10.3%	0	0.0%
Total	11	4.8%	2	1.5%

Of the 132 participating students 82 (62.1%) were females, and 50 (37.9%) were males. The average age of the participants was 24.7 years with a standard deviation of 7.7 years (Table 5). Eighty-six percent (114) were White; the other 18 were as follows: Asian (2), Black (4), Hispanic (3), Native American (6), Pacific Islander (1), and other (2).

TABLE 5
Age of Survey Participants

Age	<i>n</i>	%	Mean
< 19	47	35.6%	
20-24	40	30.3%	
25-29	12	9.1%	
30-34	15	11.3%	
35-39	10	7.6%	
40-44	4	3.0%	
45-49	2	1.5%	
50-54	0	0.0%	
55-59	1	0.8%	
> 60	0	0.0%	
Unspecified	1	0.8%	
Total	132	100.0%	24.7

Marital Status

A total of 97 participants were single, 34 were married, and one female did not indicate marital status (Table 6). Forty-seven indicated they had children: 33 females (70.2%), and 14 males (29.8%). Of the 47 with children, 16 females were single while seven males were single.

TABLE 6
Student Profile by Gender and Marital Status

Sex	<i>N</i>	%	Married		Single		W/Dep	
			<i>n</i>	%*	<i>n</i>	%*	<i>n</i>	%*
Female	82	62.2%	25	30.5%	56	68.2%	33	40.2%
Male	50	37.9%	9	18.0%	41	82.0%	14	28.0%
Total	132	100.0%	34	25.8%	97	73.5%	47	35.6%

* Percentages are within male/female group and not of the total participating in the study

Distance

The average distance from campus of all ($n=132$) participating students was 8.9 miles (Table 7). The greatest one-way distance traveled was 90 miles. Only 2 (1.5%) indicated that distance was a problem (90 miles and 49 miles), while 12 (9.1%) indicated distance was somewhat of a problem, 26 (19.7%) indicated that distance was a small problem, and 92 (69.7%) indicated that distance was no problem.

TABLE 7
Distance to Campus

Distance in Miles	<i>n</i>	%
0 - 9	92	69.7%
10 - 20	31	23.5%
21 - 30	6	4.5%
> 31	3	2.3%
Total	132	100.0%

Occupation

A total of 71 (54%) of participants were full-time students, 11 were clerical workers, seven worked in the medical services, five were homemakers and five were educators. See Table 8 for a complete listing.

TABLE 8
Occupations of Participants

Occupation	<i>n</i>	%
Accountant	1	0.8%
Clerical worker	11	8.3%
Counselor	3	2.3%
Crafts/Trades/Const	2	1.5%
Fishing/Forestry	1	0.8%
Full Time Students	71	53.8%
Homemaker	5	3.8%
Law	1	0.8%
Law Enforcement	3	2.3%
Librarian	1	0.8%
Manager/Supervisor	2	1.5%
Medical Service	7	5.3%
Nursing	1	0.8%
Planner	1	0.8%
Sales/Retailer	4	3.0%
Ed. Teacher	5	3.8%
Other	13	9.8%
Total	132	101.2%*

* Exceeds 100% because of rounding

Education

The average education level of the participants was 12.8 years with a standard deviation of 1.2 years. Enrollment level (Table 9) of freshmen totaled 89 (67%), while 17 (13%) were sophomores, 14 (11%) juniors, and 12 (9%) did not indicate an educational level. There were no senior or graduate students enrolled among those identifying education level. Sixty-nine (52%) indicated that the course was required, while 61 (46%) indicated that it was not required. Two (2%) did not indicate whether the course was required or not. Forty-four

(33.3%) indicated that this was their first course at UAA, 85 (64.4%) indicated that they had successfully completed other on-campus courses, 15 (11.4%) had completed one or more telecourses and on-campus courses, and one (0.8%) had completed only telecourses.

TABLE 9
Education Level of Participants

Sec	N	Fr	%	So	%	Jr	%	Nd	%
021	44	31	70.5%	5	3.8%	5	3.8%	3	2.3%
191	14	10	71.4%	2	14.3%	1	7.1%	1	7.1%
001	31	23	74.2%	3	9.7%	4	12.0%	1	3.2%
041	11	8	72.7%	1	9.1%	1	9.1%	1	9.1%
141	7	6	85.7%	1	14.3%	0	0.0%	0	0.0%
241	25	11	44.0%	5	20.0%	3	12.0%	6	24.0%
Total	132	89	67.4%	17	12.9%	14	10.6%	12	9.1%

Numbers of Completers

The objective of research question one was to determine if there was a significant difference between the percentage of completers of adult learners in distance education courses versus traditional courses. For the purposes of this study, Keegan's (1988) definition of distance education was used to determine which sections met the criteria of being "distance education courses." It was decided that only sections 141 and 241 qualified as distance education courses. This determination was based on the requirements for distance education courses set forth by Keegan (1988) namely:

the quasi-permanent absence of the learning group throughout the length of the learning process so that people are usually taught as individuals and not in groups, with the possibility of occasional meetings for both didactic and socialization purposes. (p. 10)

Section 141 had a total enrollment of 11, and section 241 had a total of 39 (Table 10). Of these 50 distance education students five withdrew, leaving 45 students enrolled at the end of the semester. Of these 45, 12 received failing grades. A total of 33 students received passing grades for a successful completion rate of 73.3 percent.

Sections 021, 191, 001, and 041 were determined to be traditional classroom courses when Keegan's definition was applied. Section 021 had 65 officially enrolled, one withdrew, and one audited for a final total of 63. Sixty-one (96.8%) received passing grades. Section 191 had 26 officially enrolled, two withdrew, and 19 (79.2%) received passing grades. Section 001 had 68 officially enrolled, two withdrew, one audited, and 51 (78.5%) received passing grades. Section 041 had 22 officially enrolled, 1 withdrew, and 15 (71.4%) received passing grades.

Although sections 001 and 041 were determined to be traditional classroom courses, they were separated in Table 10 to determine if there were differences in the pass/fail ratio by delivery method. Students enrolled in sections 001 and 041 gathered together at a monitoring

site on campus to view the closed circuit live television broadcasts from the campus studio classroom. Direct audio telephone lines connected the monitoring site to the studio. Students enrolled in section 021 participated in the live studio classroom broadcasts.

TABLE 10
Enrollment, Pass, Fail and Withdrew by Section

Course/ Section	Total N	Pass	% Pass	Total F's	% F's	Total W's	% W
Traditional Courses							
021*	64	61	95.3%	2	3.1%	1	1.6%
191	26	19	73.1%	5	19.2%	2	7.7%
Total Trad.	90	80	88.9%	7	7.8%	3	3.3%
Closed Circuit TV Viewers							
001*	67	51	76.1%	14	20.9%	2	2.9%
041	22	15	68.2%	6	27.3%	1	4.5%
Total TV	89	66	74.1%	20	22.5%	3	3.4%
Distance Education Courses							
141	11	9	81.8%	1	9.1%	1	9.1%
241	39	24	61.5%	11	28.2%	4	10.3%
Total DE	50	33	66.0%	12	24.0%	5	10.0%
Total	229	179	78.2%	39	17.0%	11	4.8%

*These sections each had 1 student auditing that was not included in the totals

Chi-Square Test Results

According to Handel (1978), bias would be introduced into Chi-square (χ^2) results when the distribution was for one degree of freedom. To compensate for this bias an

adjusted value of Chi-square must be calculated. Handel (1978, p. 315) stated, "This correction factor for a 2 X 2 table is called Yates' correction, and it consists of reducing the absolute difference between each of the observed and the expected frequencies by .50." A Chi-square formula with Yates' correction was used to calculate Chi-square values from 2 X 2 tables and are indicated as a "Chi-square/Yates." A standard Chi-square formula was used to calculate Chi-square values with a degree of freedom of two or more and are indicated as a "Chi-square."

Using Table 10 as a 2 x 6 matrix with five degrees-of-freedom (df), a Chi-square test was used to determine if there was a statistically significant difference in the number of completers (Pass/Fail) among the sections. A Chi-square value of 16.441 resulted which was larger than the table value of 11.070 ($p=.05$, $df=5$). This difference was statistically significant and because of this difference, additional Chi-square/Yates tests were run to attempt to determine where the differences existed, i.e., between distance education completion rates and traditional sections or within the traditional sections. The following results were obtained.

Chi-Square/Yates to Determine Difference Between Distance Education and the Traditional Classroom Completers

Using Table 10 a 2 X 2 matrix was made of the Pass/Fail students within the two distance education sections (141 and 241), and the two teacher in the classroom traditional sections (021 and 191). A Chi-square/Yates of 8.071 resulted. The critical value for a $df=1$ is 3.841, which is smaller than the value obtained. The null hypothesis was rejected on this test.

Using Table 10 a 2 X 2 matrix was made of the Pass/Fail students within the two distance education sections (141 and 241), and the two closed circuit TV monitoring traditional sections (001 and 041). A Chi-square/Yates of .202 resulted. The critical value with a $df=1$ was 3.841, which was larger than the calculated value obtained. Therefore the null hypothesis was retained on this test.

Chi-Square Test to Determine Difference Between Distance Education and Other Sections Less Section 021

A Chi-square test was run against a 2 X 5 matrix composed of all sections in Table 10 less section 021 to determine if a difference existed between the three remaining traditional sections (191, 001, and 041) and the two distance education sections (141 and 241). A Chi-

square of 2.731 resulted which was smaller than the critical value of 9.488 at the .05 level with four degrees-of-freedom. Therefore the null hypothesis was retained on this test.

Chi-Square Results to Determine if a Difference Existed Within the Traditional Classroom Sections

Using Table 10, a 2 X 4 matrix was designed using the Pass/Fail students in the two traditional classroom sections 021 and 191, and the Pass/Fail students in the two closed circuit TV monitoring traditional sections 001 and 041. A Chi-square of 12.299 resulted which was larger than the critical value at the .05 level with a $df=3$ of 7.815. This indicated that a statistically significant difference within the traditional classroom sections existed.

Using Table 10, a 2 X 2 matrix was designed using the Pass/Fail students in sections 021 and 191, the two teacher in the classroom traditional sections. A Chi-square/Yates of 6.621 resulted which was larger than the critical value at the .05 level with a $df=1$ of 3.841. This indicated that a statistically significant difference within the two teacher in the classroom traditional courses existed.

Discussion of Chi-Square and Chi-Square/Yates Testing

Section 021 was the cause of all differences among the tests run. While section 021 was a traditional (teacher in the classroom) classroom setting it tested significantly different than section 191, also a true traditional classroom setting, and sections 001 and 041 which were closed circuit TV and by definition also classed as traditional classroom settings. It is not known why section 021 was so different from the other sections but since section 021 was the unusual Pass/Fail rate among all sections tested it was the data with less emphasis assigned to it.

The test perceived most relevant for research question number one was the test comparing all sections less section 021. The null hypothesis for that test was retained. Therefore there was no statistically significant difference between the number of completers (Pass/Fail Rate) for distance education courses as compared to traditional classroom courses.

Discussion of Learning Styles

The objective of research question two was to determine what part individual learning styles, as identified by Kolb's Learning Style Inventory (LSI) (Appendix A), played in successful completion of distance

education courses as compared to traditional classroom courses. Of the 132 participants, 124 returned a usable LSI (Table 11), and eight either did not return the instrument or incorrectly completed it.

Assimilator (ASSM), a combination of AC and RO learning modes, was represented by the highest number of students ($n=42$, 33.9%), while Divergers (DIVE), a combination of CE and RO learning modes, had the next largest representation ($n=34$, 27.4%). Accommodators, a combination of CE and AE learning modes, had the third highest representation ($n=33$, 26.6%), and Converggers, a combination of AC and AE learning modes, were represented by the smallest number ($n=15$, 9.7%).

TABLE 11
Learning Styles of Participants

	<i>n</i>	%
Reflective		
Divergers: <i>Concrete Experience & Reflective Observation</i>	34	27.4%
Assimilator: <i>Abstract Conceptualization & Reflective Observation</i>	42	33.9%
Active		
Converggers: <i>Abstract Conceptualization & Active Experimentation</i>	15	9.7%
Accommodators: <i>Concrete Experience & Active Experimentation</i>	33	26.6%

Of the 120 who passed, 113 returned usable LSIs. Table 12 provides a complete listing of Pass/No-Pass learning styles by section.

Of the 93 participants in the traditional classroom courses, 23.7% ($n=22$) were Divergers (DIVE), while 40% ($n=12$) of the 30 distance education participants were Divergers. Traditional classroom courses had 26.9% Accommodators (ACCM), while distance education courses had 23.3%. Assimilator (ASSM) accounted for 38.7% ($n=36$) of the learning styles in traditional classroom courses, and 20% ($n=6$) in distance education courses. Convergers (CONV) were represented the least of all four learning styles in both groups, with 10.8% ($n=10$) in traditional classroom courses and 16.7% ($n=5$) in distance education.

TABLE 12
Learning Styles Pass vs No-Pass ($n=123$)

Sec.	DIVE		ACCT		ASSM		CONV	
	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>
Traditional Classroom								
021	9	0	11	1	15	0	5	0
191	4	1	4	0	2	0	2	0
001	6	0	5	1	13	2	2	0
041	2	0	2	1	4	0	1	0
Total Trad.	21	1	22	3	34	2	10	0
Distance Education								
141	4	0	0	0	1	0	1	0
241	8	0	5	2	4	1	3	1
Total DE	12	0	5	2	5	1	4	1
Total All	33	1	27	5	39	3	14	1

Two Chi-square tests were run on data presented in Table 12. The first test compared the distribution of learning styles within the study against the distribution of learning styles within each section. This test resulted in a Chi-square value of 5.278. The critical value at the .05 was 7.815 with a $df=3$, which was larger than the value obtained. Therefore no statistically significant difference existed between group composition of learning styles and the distribution of learning styles within each section.

The second test compared the learning styles of the 113 students who passed to determine if there were any statistically significant differences among the sections. A Chi-square value of 6.161 was obtained. Again the critical value at the .05 level with a $df=3$ was 7.815, which was larger than the calculated value returned. Therefore the null hypothesis that learning styles played no statistically significant part in successfully completion of distance education courses as compared to traditional classroom courses was retained.

Discussion of Learning Style Modes

The average scores for all ($n=124$) the modes were: CE = 26.8, RO = 31.8, AC = 29.2, and AE = 32.5. Table 13 presents the average score of each learning style mode by section. The average of the four Kolb modes (CE, RO, AC,

and AE) for the passing students ($n=113$) were fairly uniform within each of the six sections and reflected the number of the learning styles within the sections. Table 14 lists the four modes for all participants ($n=124$), all passing participants ($n=113$), for the No-Pass participants ($n=10$), and the one that withdrew.

TABLE 13
Average Score of Kolb Learning Style Modes by Section

Average Score of Role Learning by Gender and Age									
Sec.	<i>n</i>	CE		RO		AC		AE	
		AVG	<i>sd</i>	AVG	<i>sd</i>	AVG	<i>sd</i>	AVG	<i>sd</i>
021	42	25.4	8.2	31.5	6.7	30.1	8.2	33.5	8.5
191	13	30.3	7.1	30.9	6.1	25.4	7.2	33.4	6.5
001	29	25.8	6.4	32.9	8.4	30.4	6.3	30.9	7.6
041	10	29.7	8.3	27.5	7.0	30.1	8.1	32.7	9.7
141	6	35.3	6.3	35.8	9.1	26.2	4.4	32.7	6.1
241	24	27.9	8.8	32.1	7.4	28.6	7.8	31.9	7.4
<hr/>									
Tot. 124									
<i>p</i>		>.05		>.05		>.05		>.05	

Tests on Learning Style Modes

Analysis of Variance (ANOVA) tests were run on all learning style modes to determine if there were significant differences among the sections. The table value required to reject the null hypothesis at the .05 level was 2.45. An ANOVA was run on all section's CE scores which resulted in an $F_{(5, 118)} = 1.333$ ($p > .05$). An ANOVA was run on all section's RO scores which resulted in an $F_{(5, 118)} = 1.025$ ($p > .05$). An ANOVA of all section's AC scores resulted in an $F_{(5, 118)} = 1.222$ ($p > .05$). An ANOVA

of all section's AE scores resulted in an $F_{(5, 118)} = .740$ ($p > .05$). Based on the results of the above ANOVA tests, the null hypothesis that learning style modes play no statistically significant part in the successful completion of distance education courses as compared to traditional classroom courses was retained.

TABLE 14
Average Scores of Kolb's LSI Modes for All, Pass/No-Pass

Group	CE	sd	RO	sd	AC	sd	AE	sd
All	26.8	7.8	31.8	7.4	29.2	7.5	32.5	7.8
Pass	26.2	7.8	31.8	7.2	28.0	7.6	38.0	8.0
No-Pass	30.7	10.0	27.6	7.2	28.2	6.9	33.8	5.8

A Chi-square test was run on a 2 X 4 matrix from Table 14 to determine if there was a statistically significant difference among the Pass/No-Pass of the average scores for the learning style modes. A Chi-square value of .843 resulted which was smaller than the table value of 7.814 ($p=.05$, $df=3$). Therefore the null hypothesis that learning style modes played no statistically significant part in successful completion of distance education courses as compared to traditional classroom courses was retained.

All tests on learning styles were not statistically significant at the .05 level. Therefore the null hypothesis that learning style as identified by Kolb's LSI

played no part in the successful completion of distance education courses as compared to traditional classroom courses in this study was retained.

Discussion of Self-Directed Learning Readiness

The third research question of the study was to determine what role individual self-directed learning readiness played in the successful completion of distance education courses as compared to traditional classroom courses. All (132) participating students returned Guglielmino's Self-Directed Learning Readiness Scale (SDLRS). Two of the 132 participating students withdrew before the end of the semester and were not included in any averages. The mean (Table 15) of all SDLRS scores was 221.42. This was higher than the 214 reported by Guglielmino (1992) for all adults completing the questionnaire in previous study groups. The average for the SDLRS of the passing students ($n=120$) was 223.06, while the average for the No-Pass students ($n=10$) was 210.9. The average SDLRS score for the distance education courses students ($n=31$) was 224.09. The average SDLRS score for the traditional classroom students ($n=99$) was 221.04. The average for the two students who withdrew was 245.

TABLE 15
Averages and Standard Deviation for SDLRS Scores

Group	n	Average	sd	Probability
DE Only	31	224.09	25.89	> .05
Trad. Only	99	221.04	25.72	
All	130	221.42	25.72	
Pass DE	27	223.44	27.49	> .05
Pass Trad.	93	221.97	25.29	
Pass All	120	223.06	25.37	
No-Pass DE	4	221.75	11.32	> .05
No-Pass Trad.	6	203.67	29.86	
No-Pass All	10	210.90	25.00	

An Analysis of Variance (ANOVA) was run on all ($n=130$) SDLRS scores for all six sections to determine if there were statistically significant differences among them. An $F_{(5, 124)} = .327$ ($p > 0.05$) resulted. A probability level of .05 requires an F of 2.45 or greater.

An ANOVA was run against the SDLRS scores of the pass ($n=120$) and the No-Pass ($n=10$) students to determine if there was a statistically significant difference. An $F_{(1, 128)} = 1.732$ ($p > 0.05$) was obtained. A probability level of .05 requires an F of 2.22 or greater.

An ANOVA was run against the SDLRS scores of the passing ($n=31$) distance education students and the passing ($n=89$) traditional classroom students to determine if there was a statistically significant difference. An $F_{(5, 114)} = .565$ ($p > .05$) was obtained. A probability level of .05 requires an F of 2.22 or greater.

As a result of the three ANOVA tests above, the null hypotheses that individual self-directed learning readiness played no part in successful completion of distance education courses as compared to traditional classroom courses were retained.

Comparisons were made between the 123 participants who completed Kolb's Learning Style Inventory and Guglielmino's SDLRS scores to determine if there were learning readiness differences among the styles for those students who passed in the traditional classroom and those students who passed in distance education. Table 16 shows the 123 participants' learning styles and the SDLRS averages of the passing students.

TABLE 16
Self-Directed Learning Readiness by Learning
Style by Average, and Pass vs No-Pass

Style	n/Avg Pass Trad. SDLRS	No-Pass Trad. SDLRS	n/Avg Pass Distance SDLRS	No-Pass Distance SDLRS	t-test DE-vs-Trad. Pass Probability
DIVE	21/229.67	1	12/212.42	0	> 0.05
ACCT	22/218.95	3	5/237.80	2	> 0.05
ASSM	34/221.24	2	5/221.20	1	> 0.05
CONV	10/222.60	0	4/243.50	1	> 0.05
Total	87/222.85	6	26/223.77	4	> 0.05

Results of t-tests

A series of t-test were run against the individual learning styles and their associated SDLRS scores to

determine if there were any significant differences. The following results were obtained:

1. A $t_{(31)} = 1.410$ (ns) was obtained from a t-test of the Divergers' (DIVE) SDLRS scores of passing traditional classroom versus distance education students. A value of 2.042 or higher was needed to be significant at the .05 level. Therefore there was no statistically significant difference for SDLRS scores for Divergers who passed the distance education courses as compared to Divergers who passed the traditional classroom courses.
2. A $t_{(25)} = 1.555$ (ns) was obtained from a t-test of the Accommodators' (ACCT) SDLRS scores of passing traditional classroom versus distance education students. A value of 2.060 or higher was needed to be significant at the .05 level. Therefore there was no statistically significant difference for SDLRS scores for Accommodators who passed the distance education courses as compared to Accommodators who passed the traditional classroom courses.
3. A $t_{(37)} = .003$ (ns) was obtained from a t-test of the Assimulators' (ASSM) SDLRS scores of passing traditional classroom versus distance education students. A value of 2.042 or higher was needed

to be significant at the .05 level. Therefore there was no statistically significant difference for SDLRS scores for Assimulators who passed the distance education courses as compared to Assimulators who passed the traditional classroom courses.

4. A $t_{(12)} = 1.460$ (ns) was obtained from a t-test of the Convergents' (CONV) SDLRS scores of passing traditional classroom versus distance education students. A value of 2.179 or higher was needed to be significant at the .05 level. Therefore there was no statistically significant difference for SDLRS scores for Convergents who passed the distance education courses as compared to Convergents who passed the traditional classroom courses.

Because no statistically significant differences were found in the four t-tests and the three ANOVA tests run, the null hypotheses that individual self-directed learning readiness, as determined by Guglielmino's SDLRS, did not play a role in the successful completion of distance education courses as compared to traditional classroom courses was retained.

Motivation

The objective of research question number four was to determine what effect individual learners' motivation had upon successful completion of distance education courses as compared to traditional classroom courses. In an attempt to do this, two questions, number 6 and number 14, were included in the general questionnaire (Appendix C) to provide some indication of the students' motivation. Although no extensive survey was intended concerning motivation, it was hoped the data provided by these two questions would supply some insight regarding students' motivation. Question 14 will be discussed first.

Discussion of Question Number 14

Question number 14 examined the extrinsic motivation of the student's reason for taking the course. Question number 14 asked, "Is this course required for your degree?" Question number 14 was answered by 130 of the 132 participants, 118 of the 120 passing students, and all of the 10 No-Pass students (Table 17). The two students who did not answer the question passed the course. Of the 118 passing students, 67 (56.8%) indicated the course was required for their degree. Two students (20% of the failing students) also indicated the course was required for their degree. Of the 59 students that indicated the

course was not required for their degree, 8 failed (80% of the failing students). Both of the students who withdrew indicated that the course was not required for their degree.

Using data presented in Table 17, a Chi-square test was run to determine if there was a statistically significant difference between the required and not-required students for both traditional delivery Pass/No-Pass and distance education Pass/No-Pass. A Chi-square value of 4.172 was obtained. The critical value at the .05 level with a $df=3$ was 7.814, which was larger than the value returned, indicating that there was no statistically significant difference. It was concluded from this test that the motivational factor of the course being required or not required does not play a statistically significant roll in the successful completion of distance education courses as compared to traditional classroom courses and the null hypothesis was retained on this item.

TABLE 17
All Sections and Corresponding of
Required/Not Required Responses (n=128)*

Sec.	Pass Required		No-Pass Required		Pass/Not Required		No-Pass/Not Required	
	n	%	n	%	n	%	n	%
Traditional Delivery								
021	19	44.2%	0	0.0%	23	53.5%	1	2.3%
191	7	53.8%	1	7.6%	5	38.5%	0	0.0%
001	18	60.0%	1	3.3%	9	30.0%	2	6.6%
041	7	63.6%	0	0.0%	3	27.3%	1	9.1%
Total	51	52.6%	2	2.1%	40	41.2%	4	4.1%
Distance Education								
141	4	66.6%	0	0.0%	2	33.3%	0	0.0%
241	12	48.0%	0	0.0%	9	36.0%	4	16.0%
Total	16	51.6%	0	0.0%	11	35.5%	4	12.9%
Total	67	52.3%	2	1.6%	51	39.8%	8	6.3%

* 2 failed to indicate status and 2 withdraw (not included in tabulations)

Discussion of Question Number 6

Question number six asked, "Why are you taking this course?" Question number 6 offered the participants 11 possible choices plus an area for additional comments. The question combined both extrinsic and intrinsic motivational factors. Assigning letters A-L to the statements as follows provided a way to tabulate the results:

A = Retraining,

B = Personal development,

C = College credit,

- D = College degree,
- E = Upgrading job skills,
- F = Wanted to learn more about the subject,
- G = Fits my work schedule,
- H = Only way course is offered,
- I = Fits my course schedule,
- J = Regular classes are filled,
- K = Enjoy taking university courses,
- L = Other.

Responses B, F, and K represented intrinsic motivation questions. All other statements were considered extrinsic. All 132 students answered question number six (Table 18). Ninety-six responded with two or more statement choices. The two students who withdrew were not used in the calculations. Statement C, "College credit" received the highest number of respondents ($n=105$, 67%). Taking the course for a "College degree" (statement D), received the next highest number of respondents ($n=63$, 53%). Fifty-three (44%) responded that the reason they were taking the course was for "personal development," (statement B). Table 19 provides data on the responses to question 6 by traditional classroom students. Table 20 provides data on the responses to question six by distance education students.

TABLE 18
All (N=130) Responses to Question 6

State- ment	#	Required	%*	Pass	No- Pass	Not Required	%*	Pass	No- Pass
A	4	2	1%	2	0	2	2%	2	0
B	53	26	20%	25	1	26	20%	21	5
C	105	56	43%	54	2	49	47%	42	7
D	63	39	37%	38	1	24	18%	21	3
E	15	6	5%	6	0	9	7%	6	3
F	49	20	15%	20	0	29	22%	26	3
G	22	9	7%	8	1	13	10%	10	3
H	3	3	2%	0	0	0	0%	0	0
I	35	17	13%	16	1	18	14%	16	2
J	7	1	1%	1	0	6	5%	5	2
K	15	10	1%	10	0	5	4%	4	1
L	3	0	0%	0	0	3	2%	3	0

*Percent computed against N=130

TABLE 19
Traditional Classes (N=99) Responses to Question 6

State- ment	#	Required	%*	Pass	No- Pass	Not Required	%*	Pass	No- Pass
A	1	1	1%	1	0	1	1%	1	0
B	40	22	22%	21	1	18	18%	15	2
C	80	42	42%	40	2	38	38%	33	5
D	47	30	30%	29	1	17	17%	14	3
E	10	5	5%	5	0	5	5%	3	2
F	40	17	17%	17	0	23	23%	22	1
G	11	5	5%	4	1	6	6%	5	1
H	3	3	3%	0	0	0	0%	0	0
I	26	12	9%	11	1	14	14%	13	1
J	4	1	1%	1	0	4	4%	3	1
K	12	8	8%	8	0	4	4%	3	1
L	3	0	0%	0	0	3	3%	3	0

*Percentage computed against n=99

TABLE 20
Distance Education Courses (N=31) Responses to Question 6

State- ment	#	Required	%*	Pass	No- Pass	Not Required	%*	Pass	No- Pass
A	3	1	3%	1	0	2	6%	2	0
B	13	4	13%	4	0	9	29%	6	3
C	25	14	45%	14	0	11	35%	9	2
D	16	9	29%	14	0	7	23%	7	0
E	5	1	3%	1	0	4	13%	3	1
F	9	3	10%	3	0	6	19%	4	2
G	11	4	13%	4	0	7	23%	5	2
H	0	0	0%	0	0	0	0%	0	0
I	9	5	16%	5	0	4	13%	3	1
J	3	0	0%	0	0	3	10%	2	1
K	3	2	6%	2	0	1	3%	1	0
L	0	0	0%	0	0	0	0%	0	0

*Percent computed against N=31

Testing for Extrinsic Motivational Factors in Question 6

Data from Tables 19 and 20 were used to analyze distance education student and traditional classroom student responses to question six, statements A, C, D, E, G, H, I, J (extrinsic motivational factors).

Chi-square/Yates tests were run on all items of question six (less statement L). Significant differences were found for item A (Retraining) and item G (Fits my work schedule). No significant differences were found in the others. Item A testing resulted in a Chi-square/Yates value of 4.756 which was larger than the table value of 3.841 at the .05 level with a degree-of-freedom of 1. Testing on question six, item G, returned a Chi-square/Yates value of 9.033 which was larger than the

table value at the .05 level ($df=1$) of 3.841. The null hypothesis was rejected on both of these items.

Testing for Intrinsic Motivational Factors in Question 6

Using data from Tables 19 and 20, a 2 X 3 matrix was constructed that represented distance education student and traditional classroom student answers to Question 6's intrinsic motivation responses B, F, and K. A Chi-square value of .594 resulted. The critical value at .05 ($df=2$) level was 5.991 which was larger than the Chi-square value, therefore there was no statistically significant difference.

Because of the results of the Chi-square tests it was concluded that individual learners' extrinsic (less items A and G), and intrinsic motivation, as determined by the general questionnaire, had no effect upon a student's successful completion of a distance education course as compared to a student's successful completion of a traditional classroom courses. However, for A (Retraining) and G (Fits my work schedule) the null hypothesis was rejected and these two items did effect successful completion of distance education courses as compared to traditional classroom courses.

Differences by Student Personal Profiles

The objective of research question five was to determine if there was a statistically significant difference between personal profiles of students enrolled in distance education courses and those enrolled in traditional classroom courses. To do this, data provided by certain questions on the general questionnaire (Appendix C) were compared for the distance education course sections (141 and 241), and the traditional classroom course sections (021, 191, 001, and 041). Each question thus used will be discussed below.

Discussion of Age Differences

Question one (What is your Age?) was answered by all but one of the 132 participants. The average age for all ($n=131$) participants was 24.7 years. The average age of distance education students was 25.6, and was 24.4 for traditional students. Table 21 provides a complete summary of both groups by age groups.

TABLE 21
Age Groupings of Distance and Traditional Students

Distance Education (N=32)			Traditional Classroom (N=99)		
Age Groups	n	%	Age Groups	n	%
Under 19	7	21.9%	Under 19	40	40.0%
20 - 24	13	40.6%	20 - 24	27	27.3%
25 - 29	2	6.3%	25 - 29	10	10.1%
30 - 34	6	18.8%	30 - 34	9	9.1%
35 - 39	3	9.4%	35 - 39	7	7.1%
40 - 44	1	3.1%	40 - 44	3	3.0%
45 - 49	0	0.0%	45 - 49	2	2.0%
50 - 54	0	0.0%	50 - 54	0	0.0%
55 - 59	0	0.0%	55 - 59	1	1.0%
Over 60	0	0.0%	Over 60	0	0.0%
Chi-square Probability > 0.05					
Total	32	101.0%*		99	99.6%*
Mean	25.6			24.4	

* Over/under 100% result of rounding

A Chi-square test was run to determine if there was a statistically significant difference in ages between distance education students and traditional classroom students. The data in Table 21 produced a 2 x 10 matrix that resulted in a Chi-square value of 6.493 which was less than the critical value of 16.919 ($p=.05$, $df=9$). The null hypothesis was retained as a results of this test.

Discussion of Gender Differences

Question two concerned participants gender. All 132 participants answered this question (Table 22). Of the total 50 males enrolled, only 6 (12%) were enrolled in distance education courses. Of the 82 females enrolled, 26 (32%) were enrolled in the distance education courses.

The male/female ratio of 6:26 in the distance education sections caused some initial concern. Males represented only 18.8% of the distance education students. A total of 23.1% ($n=9$) of the final enrollment of 39 in section 241 were males. To determine if this scenario was an isolated incident or if it represented a normal pattern for distance education PSY-111 enrollment, a review of distance education enrollment levels from Fall 1990 to Fall 1993 was conducted. The review revealed that the total male enrollment of all PSY-111 courses averaged 23.6%, with the averages of male enrollment of similar individual psychology courses ranging from 11.1% to 34.9%.

TABLE 22
Distribution of Students by Gender

	Male	%	Female	%	Probab- ility
Distance Education	6	18.8%	26	81.3%	
Traditional Classroom	44	44.0%	56	56.0%	
Total	50	37.9%	82	62.2%	>0.05

A Chi-square/Yates test was run to determine if a statistically significant difference of the total number of males/females existed between distance education students and traditional classroom students. Data in Table 22 provided a Chi-square/Yates value of 6.746 which was larger than the table value ($p=.05$, $df=1$) of 3.841. The null hypothesis was rejected on this test.

Discussion of Marital Differences

Question three asked the marital status of the participants. Of the 132 respondents, 98 were single and 19 (19.4%) of these were enrolled in the distance education courses. A total of 34 were married and 13 (38.2%) were enrolled in the distance education courses. Table 23 contains the responses to this question.

TABLE 23
Marital and Dependent Status of Groups

	Distance	%	Traditional	%	Total
Married					
Male W/O Dep	1	3.1%	1	1/0%	2
Male W/Dep	1	3.0%	6	6.0%	7
Female W/O Dep	4	12.5%	4	4.0%	8
Female W/Dep	7	21.9%	10	10.0%	17
Single					
Male W/O Dep	4	12.5%	30	30.0%	34
Male W/Dep	0	0.0%	7	7.0%	7
Female W/O Dep	10	31.3%	31	31.0%	41
Female W/Dep	5	15.6%	11	11.0%	16
Total	32	24.2%	100	75.8%	132
Marital Chi-square Probability > 0.05					
Dependent Chi-square Probability > 0.05					

A Chi-square test was run to determine if a statistically significant difference existed for the marital status of students existed between those enrolled in distance education courses as compared to those in traditional classroom courses. Table 23 provided data for a 2 X 4 table that resulted in a Chi-square value of 10.150 which was larger than the table value of 7.815

($p=.05$, $df=3$). The null hypothesis was rejected on this test.

Discussion of Dependents Status

Question four asked the number of dependent children in the respondent's household. Rather than breaking this down by number of dependents in each household, the question was defined by the number answering that they had one or more dependents. A total of 132 responded to this question, with 47 indicating that they had dependents in their household. Of these 47 with dependents, 13 (27.7%) were enrolled in distance education courses. Table 23 also reflects the responses to this question.

A Chi-square test was run from data provided by Table 23 to determine if there was a statistically significant difference in the number of students with and without dependents in distance education courses as compared to students in traditional classroom courses. A Chi-square value of 11.033 was obtained which was larger than the critical value of 7.815 at the .05 level with a $df=3$. The null hypothesis was rejected by this test.

Discussion of Ethnic Background

Question five asked for the participants' ethnic background. Of the 132 respondents 114 (86.4%) were White. Twenty-seven (84.4%) of the 32 distance education students were White, and 87 (87%) of the traditional classroom students were White. Table 24 provides a complete listing of ethnic background for both groups.

TABLE 24
Distribution of Students by Ethnic Background

	Distance Education		Traditional Classroom	
	<i>n</i>	%	<i>n</i>	%
Asian	1	3.1%	1	1.0%
Am. Native	2	6.3%	4	4.0%
Black	1	3.1%	3	3.0%
Hispanic	1	3.1%	2	2.0%
Pacific	0	0.0%	1	1.0%
White	27	84.4%	87	87.0%
Other	0	0.0%	2	2.0%
Total	32	100.0%	100	100.0%
Chi-square Probability < 0.05				

Table 24 provided data for a 2 X 7 matrix from which a Chi-square test was run to determine if there was a statistically significant difference in the ethnic background of students enrolled in distance education courses and students in traditional classroom courses. A value of 2.107 was obtained which was smaller than the

table value of 12.592 at the .05 level with a degree-of-freedom of 6. The null hypothesis was retained.

Questions Seven and Eight

Questions seven and eight were not deemed part of this study. The results of these questions were used by University of Alaska Anchorage Distance Education Department for course planning.

Discussion of Primary Occupation Differences

Question nine asked for participants primary occupation. Of interest were those who indicated that they were full-time students ($n=71$, 53.8%). While 34.4% ($n=11$) of the distance education students were full-time students, almost twice the percentage (60%, $n=60$) of the traditional classroom students were full-time students. A Chi-square/Yates test was run to determine if there was a statistically significant difference in the number of full-time students in distance education courses as opposed to traditional classroom courses. A value of 6.405 was returned which was larger than the critical value of 3.841 ($p=0.05$, $df=1$). The null hypothesis was rejected on this item test.

Discussion of Education Level and GPA

Questions 10 and 11 asked participants' educational level and Grade Point Average (GPA) respectively. The education level of both groups were identical: 12.8 years, with a standard deviation of 1.2 years. The average GPA for distance education participants was 3.08, slightly higher than the 3.06 of traditional classroom students. A t-test analysis found no statistically significant difference and therefore the null hypothesis that there would be no difference in GPA's for distance education students as compared to traditional classroom students was retained.

Discussion of Class Standing

Question 12 asked for the participants class standing at UAA. The freshmen level was represented by the largest number, 89 (Table 25) of which distance education courses had 17, and traditional classroom courses had 72. There were no senior or graduate students in either group. Twelve indicated they were not declared as a degree seeking student and had no class status. Chi-square/Yates testing on the numbers of Freshmen, Sophomore, and Junior participants resulted in no statistically significant difference and the null hypothesis was accepted on these items. However, testing on the numbers of undeclared in

each group resulted in an F value of 4.266 which is larger than the table value of 3.841 at the .05 level with a degree-of-freedom of 1. Therefore, the null hypothesis was rejected on this item, indicting that there was a statistically significant difference in the number of undeclared students in the distance education group as compared to the traditional classroom group, with distance education courses having proportionately more undeclared students.

TABLE 25
Education Level of Students

Level	Distance Education		Traditional Classroom		Probability
	<i>n</i>	%	<i>n</i>	%	
Freshmen	17	53.0%	72	72.0%	> 0.05
Sophomore	6	18.8%	11	11.0%	> 0.05
Junior	3	9.4%	11	11.0%	> 0.05
Undeclared	6	18.8%	6	6.0%	> 0.05
Total	32	100.0%	100	100.0%	

Discussion of Questions 15, and 16

Question 15 and 16 asked the students if the course was in their first semester of courses at UAA, and if they had previously successfully completed courses at UAA respectively. The two students who withdrew before the end of the semester were not included in the data.

A total of 44 indicated that the course was being taken during their first semester at UAA (Table 26). Of the 31 distance education students, 10 (32.3%) responded positive to this question. Of the 98 traditional classroom students, 34 (34.7%) responded positive to the question. A Chi-square/Yates test found no statistically significant difference between the two groups, therefore the null hypothesis was retained on this question.

Question 16 had two possible responses, i.e., number of telecourses taken and/or number of on-campus courses taken. A total of 85 participants indicated they had previously successfully completed courses (Table 26). Of the 31 distance education students, 23 (74.2%) responded positively and 62 (62.6%) of the traditional classroom students responded positively. A Chi-square/Yates analysis of the data indicated no statistically significant differences, therefore the null hypothesis was retained on this item.

TABLE 26
Course Participation

Topic	Distance Education		Traditional Classroom		Prob-ability
	<i>n</i>	%*	<i>n</i>	%**	
Course taken in first semester	10	32.3%	34	34.3%	> 0.05
Previous Success at UAA	23	74.2%	62	62.6%	> 0.05
Successful Completion of Telecourses	11	35.5%	5	5.1%	< 0.05

* Percentage computed against 31 (1 student withdrew and not counted)

** Percentage computed against 99 (1 student withdraw and not counted)

A total of 16 responded that they had previously successfully completed telecourses. Of the 31 distance education students, 11 (35.5%) indicated that they had previously successfully completed telecourses while only 5 (5.1%) of the 98 traditional classroom students responded positively. All but one of the 16 students that indicated successful completion of telecourses had also successfully completed on-campus courses. A Chi-square/Yates analysis resulted in a F value of 19.248, which was larger than the critical value of 3.841 at the .05 level with a degree-of-freedom of one, therefore the null hypothesis was rejected on this item, indicating that a statistically significant difference existed in the number of distance education students that had previously taken telecourses as compared to traditional classroom students who had previously taken telecourses.

CHAPTER V
SUMMARY, CONCLUSIONS, IMPLICATIONS
AND RECOMMENDATIONS

Summary and Conclusions

The primary purpose of this study was to determine if there were differences between successful adult learners of distance education courses and traditional classroom courses. Five research questions were developed to guide the study and identify areas of possible differences. They were:

1. Is there a difference in the percentage of successful completers of distance education courses and traditional classroom courses?
2. Is there a difference in individual learning styles of students who participate in distance education course and those who participate in traditional classroom courses?
3. Is there a difference in individual readiness for self-directed learning of students of distance education courses and students of traditional classroom courses?
4. Is there a difference in individual student motivation for distance education courses and traditional classroom courses?

5. Is there a difference in students' personal profile for students enrolled in distance education courses and traditional classroom courses?

Summary and conclusions will be presented by objective.

Objective One

The first objective of the study was to determine if there was a difference in the percentage of successful completers between students enrolled in distance education courses and those enrolled in traditional classroom courses. There proved to be no statistically significant difference between the number of successful completers in distance education courses as compared to traditional classroom courses. It can therefore be concluded that students who participate in distance education courses are as capable of completing the course as students who participate in traditional classroom courses.

It can further be concluded that courses delivered by distance education are of the same quality and rigor as courses delivered by traditional classroom instruction.

Objective Two

The second objective of the study was to determine what role individual learning styles played in the successful completion of distance education courses as compared to traditional classroom courses. The null hypothesis concerning this objective was retained. Therefore, it was concluded that individual learning styles were not predictors of a student's successful completion of a distance education course as compared to a traditional classroom course.

It can further be concluded that students do not select a delivery format which fits their learning style but rather students select courses and delivery formats based on convenience and opportunities.

Objective Three

The third objective was to determine the role individual self-directed learning readiness played in the successful completion of distance education courses as compared to traditional classroom courses. Analysis of Variance testing did not find any statistically significant difference between self-directed learning readiness of distance education students who successfully completed the courses as compared to that of traditional classroom students who successfully completed the courses. It

therefore can be concluded that self-directed learning readiness played no statistically significant role in successful completion of distance education courses.

It can further be concluded that college student average or higher SDLRS scores indicate that these students are capable to taking responsibility for learning regardless of delivery format.

Objective Four

Determining the effect that the individual learner's motivation had upon successful completion of distance education courses as compared to traditional classroom courses was the fourth objective of the study. Both intrinsic and extrinsic motivational factors were analyzed using Chi-square and Chi-square with Yates correction tests. Only two statistically significant differences were noted. The two statistically significant motivational factors were "Retraining" and "Fits my work schedule." All others were not significant. It therefore can be concluded that all motivational factors were held in common by both groups except for "Retraining" and "Fits my work schedule." It can be further concluded that people who are working or for other reasons cannot participate in traditional classroom courses take distance education courses.

Objective Five

The fifth objective of the study was to determine if there was a statistically significant difference between personal profiles of distance education students as compared to traditional classroom students. Chi-square, Chi-square with Yates correction tests and a t-test were run against questions of the general questionnaire. The conclusions to those findings were as follows:

1. Difference in age between distance education and traditional classroom students was not statistically significant. Therefore it can be concluded that significant age differences did not exist between the two groups studied.
2. Difference in gender between distance education and traditional students was statistically significant. The difference appeared between the number of males enrolled in distance education courses (6, 18.8%) as compared to the number of males enrolled in traditional classroom courses (44, 44%). Therefore it can be concluded that a higher percentage of females participate in distance education courses.
3. Difference in marital status between distance education and traditional students was found to be statistically significant. A total of 40% of the

distance education students were married as compared to 21% of the traditional classroom students. Therefore it can be concluded that a larger percentage of married students participate in distance education courses.

4. A statistically significant difference was found between the number of students in distance education courses with dependents as compared to those with dependents enrolled in traditional classroom courses. There was a larger percentage of married females with dependents (21.9%) enrolled in distance education courses than in traditional classroom courses (10%). Therefore it can be concluded that a larger percentage of married females with dependents take distance education courses as compared to traditional classes courses. It can further be concluded in summing items two, three and four of this section that females, who because of marriage, full-time work, child bearing, full-time dependant need, and/or second income, are participating in distance education to obtain their education. Distance education provides these individuals the opportunity to participate in educational programs which they may not have been able to participate in if distance education courses were not available.

5. No significant difference was found in the ethnic background of the two groups.
6. Differences in full-time/part-time student enrollment between distance education and traditional classroom students were found to be statistically significant. Nearly twice the percentage of traditional classroom students were full-time students as compared to distance education students. This finding was in keeping with the review of the literature that indicated a majority of the distance education students were employed full-time and found distance education courses convenient to their work schedule. It therefore can be concluded that distance education courses offer students, who otherwise cannot attend full-time, an opportunity to participate in educational programs.
7. There was no statistically significant difference between participants' educational level and Grade Point Average (GPA). Therefore it can be concluded that neither grade level nor GPA should be used as factors to determine enrollment in distance education courses.
8. A statistically significant difference was found in the percentage of distance education students who were undeclared in a major. From this it was

concluded that a larger percentage of adults exploring higher education do so through distance education courses than in traditional classroom courses. It was also recognized that lack of contact with an adviser may contribute to a higher percentage of undeclared students among the distance education group.

9. Distance education students had a statistically significant higher previous telecourse participation rate than traditional classroom students. It was concluded from this finding that students enrolled in distance education courses tend to repeat in distance education courses. The finding also indicated that a majority of distance education students had also previously taken traditional courses. It was therefore further concluded that many students use both delivery methods in the pursuit of their educational goals.

Implications

Based upon the review of literature, findings, analyses, and conclusions cited, the following implications regarding the future use of Kolb's Learning Style Indicator, Guglielmino's Self-Directed Learning Readiness Scale, motivation indicators, and personal profiles as predictors of successful course completion for distance

education students as compared to traditional classroom students are offered.

1. Kolb's Learning Style Indicator survey highlighted preferred learning styles of the students participating in the study. Although learning styles played no significant role in the successful completion of distance education courses, it was apparent that all learning styles were present. Because of this presence, teachers should take care to present material in ways that encompass the learning styles of all students.
2. Guglielmino's Self-Directed Learning Readiness Scale (SDLRS) indicated that the majority of students enrolled in both distance education courses and traditional classroom courses were average or above average in self-directed learning readiness. This implies that the students were capable of taking control of their learning, and therefore separation of teacher and learner was not a hinderance to learning.
3. Motivation maybe an important factor in successful completion of distance education courses. An instrument which measures motivation accurately from several perspectives would be useful in determining exactly how important motivation is to success in distance education.

4. The finding that there was a statistically significant difference between the number of distance education students who had previously successfully completed telecourses as compared to traditional classroom students implies that it may be possible to determine a student's potential for success in subsequent distance education courses by their success in previous distance education courses.

Recommendations to Those who Deliver Distance Education

1. All learning styles are present in the distance education courses, therefore teachers should teach with variety to facilitate these learning styles.
2. SDLRS scores indicated that distance education students are ready to take responsibility for their learning, therefore it is recommended that distance education teachers should consider andragogical approaches to their teaching.
3. Most motivational characteristics were shared by both groups except "Retraining" and "Fits my work schedule." Therefore it is recommended that distance education providers should deliver courses which advance students' educational standing for new work opportunities and meeting current work schedule limitations.

4. Repeated enrollment in distance education telecourses indicate that students continue to use this delivery method because of previous success. Therefore it is recommended that distance education providers should target previous telecourse students for future telecourse offerings.

Recommendations for Further Study

1. It is recommended that a similar study be conducted using Kolb's Learning Style Indicator survey and a general questionnaire. However, the degree of success should be measured, i.e., grades of "A" - "I." It is also recommended that the testing be conducted in the classroom for traditional on-campus courses, and return of the instruments mandatory for distance education enrollment. This would provide more participation and more complete data on pass/fail statistics. This would also provide data on the learning styles and students' by degree of success between the two delivery methods.
2. It is recommended that an instrument exclusively designed to measure motivation be used in a similar survey to determine what role motivation

truly plays in successful completion of distance education courses.

3. Because of the possibility that teaching styles and/or grading philosophy may influence the level of attainment for students of different sections, it is recommended that a similar study be conducted, however, one teacher should instruct all classroom and distance education sections.

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APPENDICES

Appendix A
Kolb's Learning Style Inventory
LSI

(Reprinted with permission)

Learning-Style Inventory: Instructions

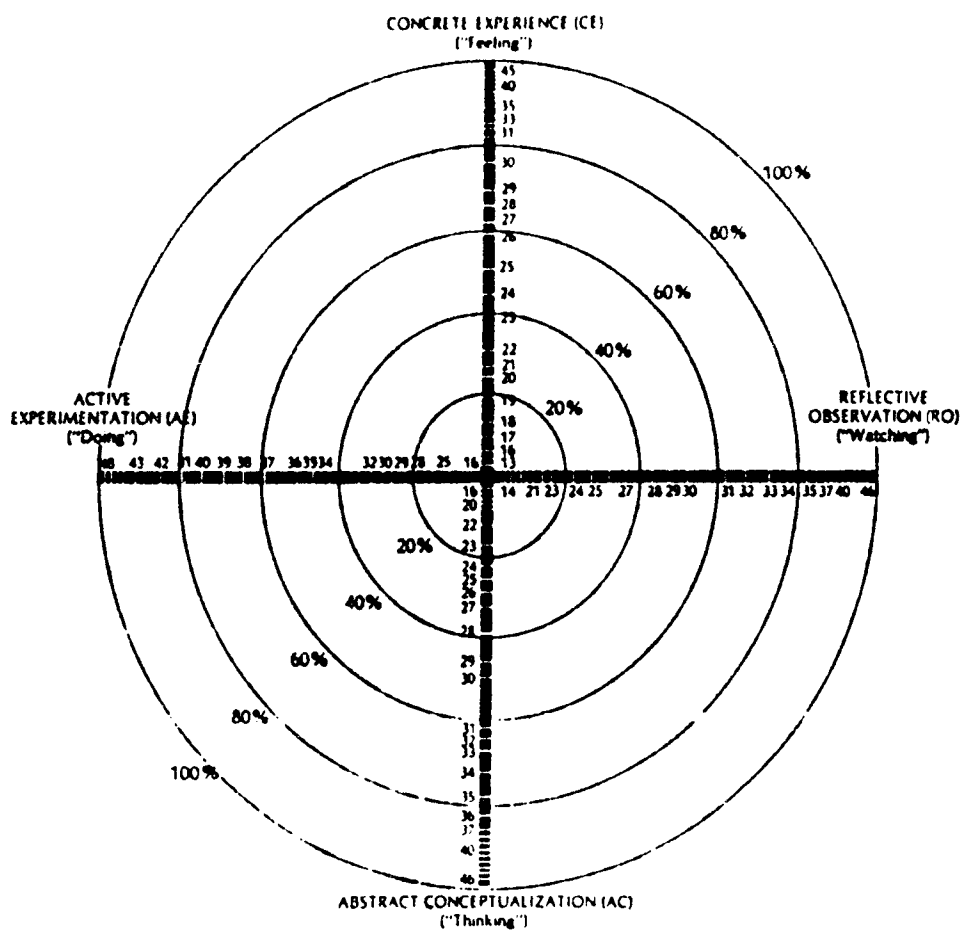
The Learning Style Inventory describes the way you learn and how you deal with ideas and day-to-day situations in your life. Below are 12 sentences with a choice of four endings. Rank the endings for each sentence according to how well you think each one fits with how you would go about learning something. Try to recall some recent situations where you had to learn something new, perhaps in your job. Then, using the spaces provided, rank a "4" for the sentence ending that describes how you learn best, down to a "1" for the sentence ending that seems least like the way you would learn. Be sure to rank all the endings for each sentence unit. Please do not make ties.

Example of completed sentence set:

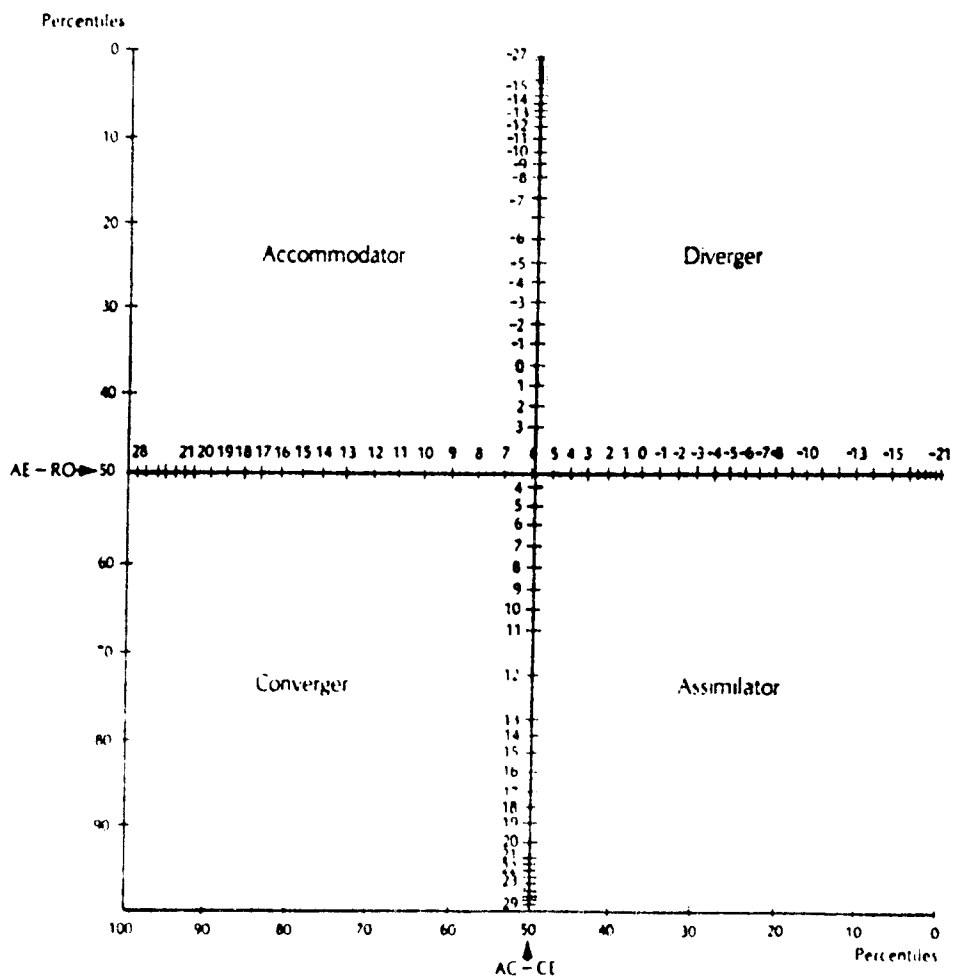
0. When I learn: 4 I am happy 1 I am fast 2 I am logical 3 I am careful

- | | | | | |
|-------------------------|---|--|---|---|
| 1. When I learn: | <u> </u> I like to deal with my feelings. | <u> </u> I like to watch and listen. | <u> </u> I like to think about ideas. | <u> </u> I like to be doing things. |
| 2. I learn best when: | <u> </u> I trust my hunches and feelings. | <u> </u> I listen and watch carefully. | <u> </u> I rely on logical thinking. | <u> </u> I work hard to get things done. |
| 3. When I am learning: | <u> </u> I have strong feelings and reactions. | <u> </u> I am quiet and reserved. | <u> </u> I tend to reason things out. | <u> </u> I am responsible about things. |
| 4. I learn by: | <u> </u> feeling. | <u> </u> watching. | <u> </u> thinking. | <u> </u> doing. |
| 5. When I learn: | <u> </u> I am open to new experiences. | <u> </u> I look at all sides of issues. | <u> </u> I like to analyze things, break them down into their parts. | <u> </u> I like to try things out. |
| 6. When I am learning: | <u> </u> I am an intuitive person. | <u> </u> I am an observing person. | <u> </u> I am a logical person. | <u> </u> I am an active person. |
| 7. I learn best from: | <u> </u> personal relationships. | <u> </u> observation. | <u> </u> rational theories. | <u> </u> a chance to try out and practice. |
| 8. When I learn: | <u> </u> I feel personally involved in things. | <u> </u> I take my time before acting. | <u> </u> I like ideas and theories. | <u> </u> I like to see results from my work. |
| 9. I learn best when: | <u> </u> I rely on my feelings. | <u> </u> I rely on my observations. | <u> </u> I rely on my ideas. | <u> </u> I can try things out for myself. |
| 10. When I am learning: | <u> </u> I am an accepting person. | <u> </u> I am a reserved person. | <u> </u> I am a rational person. | <u> </u> I am a responsible person. |
| 11. When I learn: | <u> </u> I get involved. | <u> </u> I like to observe. | <u> </u> I evaluate things. | <u> </u> I like to be active. |
| 12. I learn best when: | <u> </u> I am receptive and open-minded. | <u> </u> I am careful. | <u> </u> I analyze ideas. | <u> </u> I am practical. |

The Cycle of Learning



Learning-Style Type Grid



Appendix B

**Guglielmino's Self-Directed
Learning Readiness Scale
(SDLRS)**

(Reprinted with permission)

SDIRS A

Name _____ Sex _____ Birthdate _____
 Date of Testing _____ Location of Testing _____

QUESTIONNAIRE

INSTRUCTIONS: This is a questionnaire designed to gather data on learning preferences and attitudes towards learning. After reading each item, please indicate the degree to which you feel that statement is true of you. Please read each choice carefully and circle the number of the response which best expresses your feeling.

There is no time limit for the questionnaire. Try not to spend too much time on any one item, however. Your first reaction to the question will usually be the most accurate.

RESPONSES

ITEMS:

	<i>Almost never true of me; I hardly ever feel this way.</i>	<i>Not often true of me; I feel this way less than half the time.</i>	<i>Sometimes true of me; I feel this way about half the time.</i>	<i>Usually true of me; I feel this way more than half the time.</i>	<i>Almost always true of me; there are very few times when I don't feel this way.</i>
1. I'm looking forward to learning as long as I'm living.	1	2	3	4	5
2. I know what I want to learn.	1	2	3	4	5
3. When I see something that I don't understand, I stay away from it.	1	2	3	4	5
4. If there is something I want to learn, I can figure out a way to learn it.	1	2	3	4	5
5. I love to learn.	1	2	3	4	5
6. It takes me a while to get started on new projects.	1	2	3	4	5
7. In a classroom, I expect the teacher to tell all class members exactly what to do at all times.	1	2	3	4	5
8. I believe that thinking about who you are, where you are, and where you are going should be a major part of every person's education.	1	2	3	4	5
9. I don't work very well on my own.	1	2	3	4	5

	<i>Almost never true of me. I hardly ever feel this way</i>	<i>Not often true of me. I feel this way less than half the time</i>	<i>Sometimes true of me. I feel this way about half the time</i>	<i>Usually true of me. I feel this way more than half the time</i>	<i>Almost always true of me. there are very few times when I don't feel this way</i>
10. If I discover a need for information that I don't have, I know where to go to get it	1	2	3	4	5
11. I can learn things on my own better than most people	1	2	3	4	5
12. Even if I have a great idea, I can't seem to develop a plan for making it work.	1	2	3	4	5
13. In a learning experience, I prefer to take part in deciding what will be learned and how.	1	2	3	4	5
14. Difficult study doesn't bother me if I'm interested in something.	1	2	3	4	5
15. No one but me is truly responsible for what I learn.	1	2	3	4	5
16. I can tell whether I'm learning something well or not.	1	2	3	4	5
17. There are so many things I want to learn that I wish that there were more hours in a day.	1	2	3	4	5
18. If there is something I have decided to learn, I can find time for it, no matter how busy I am.	1	2	3	4	5
19. Understanding what I read is a problem for me.	1	2	3	4	5
20. If I don't learn, it's not my fault	1	2	3	4	5
21. I know when I need to learn more about something	1	2	3	4	5
22. If I can understand something well enough to get a good grade on a test, it doesn't bother me if I still have questions about it	1	2	3	4	5
23. I think libraries are boring places	1	2	3	4	5
24. The people I admire most are always learning new things	1	2	3	4	5

	<i>Almost never true of me, I hardly ever feel this way</i>	<i>Not often true of me, I feel this way less than half the time</i>	<i>Sometimes true of me, I feel this way about half the time</i>	<i>Usually true of me, I feel this way more than half the time</i>	<i>Almost always true of me, there are very few times when I don't feel this way</i>
25. I can think of many different ways to learn about a new topic	1	2	3	4	5
26. I try to relate what I am learning to my long-term goals	1	2	3	4	5
27. I am capable of learning for myself almost anything I might need to know.	1	2	3	4	5
28. I really enjoy tracking down the answer to a question.	1	2	3	4	5
29. I don't like dealing with questions where there is not one right answer.	1	2	3	4	5
30. I have a lot of curiosity about things.	1	2	3	4	5
31. I'll be glad when I'm finished learning.	1	2	3	4	5
32. I'm not as interested in learning as some other people seem to be.	1	2	3	4	5
33. I don't have any problem with basic study skills.	1	2	3	4	5
34. I like to try new things, even if I'm not sure how they will turn out.	1	2	3	4	5
35. I don't like it when people who really know what they're doing point out mistakes that I am making	1	2	3	4	5
36. I'm good at thinking of unusual ways to do things	1	2	3	4	5
37. I like to think about the future	1	2	3	4	5
38. I'm better than most people are at trying to find out the things I need to know	1	2	3	4	5
39. I think of problems as challenges, not stopsigns	1	2	3	4	5
40. I can make myself do what I think I should	1	2	3	4	5

41. I'm happy with the way I investigate problems.
42. I become a leader in group learning situations.
43. I enjoy discussing ideas.
44. I don't like challenging learning situations.
45. I have a strong desire to learn new things.
46. The more I learn, the more exciting the world becomes.
47. Learning is fun.
48. It's better to stick with the learning methods that we know will work instead of always trying new ones.
49. I want to learn more so that I can keep growing as a person.
50. I am responsible for my learning — no one else is.
51. Learning how to learn is important to me.
52. I will never be too old to learn new things.
53. Constant learning is a bore.
54. Learning is a tool for life.
55. I learn several new things on my own each year.
56. Learning doesn't make any difference in my life.
57. I am an effective learner in the classroom and on my own.
58. Learners are leaders.

<i>Almost never true of me, I hardly ever feel this way</i>	<i>Not often true of me, I feel this way less than half the time</i>	<i>Sometimes true of me, I feel this way about half the time</i>	<i>Usually true of me, I feel this way more than half the time</i>	<i>Almost always true of me, there are very few times when I don't feel this way</i>
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

Appendix C
General Questionnaire

ID: _____

GENERAL SURVEY

Please check or enter an appropriate response to the following statements.

1. What is your Age: _____
2. Sex: ☐ female ☐ male
3. Marital status: ☐ married ☐ single
4. Number of dependent children in your household? _____
5. Ethnic status:

<input type="checkbox"/> Asian	<input type="checkbox"/> Black	<input type="checkbox"/> Hispanic
<input type="checkbox"/> Native American	<input type="checkbox"/> Pacific Islander	<input type="checkbox"/> White
<input type="checkbox"/> Other (Specify: _____)		
6. Why are you taking this course? (Check all blocks that apply)

<input type="checkbox"/> Retraining	<input type="checkbox"/> Personal development
<input type="checkbox"/> College credit	<input type="checkbox"/> College degree
<input type="checkbox"/> Upgrading job skills	<input type="checkbox"/> Wanted to learn more about the subject
<input type="checkbox"/> Fits my work schedule	<input type="checkbox"/> Only way course is offered
<input type="checkbox"/> Fits my course schedule	<input type="checkbox"/> Regular classes are filled
<input type="checkbox"/> Enjoy taking university courses	
<input type="checkbox"/> Other _____	
7. How many miles one-way is your home from the university campus? _____ miles
8. Answer the following question with a number between 1 and 4.
Where 1 = Very Much a Problem, 2 = Somewhat of a Problem,
3 = A Small Problem, and 4 = No Problem.
 - a. Distance to and/or from campus is: _____
 - b. Transportation to and/or from campus is: _____
 - c. Child care is: _____
9. Primary Occupation: (Please check the closest one)

<input type="checkbox"/> Accountant	<input type="checkbox"/> Actor/Actress	<input type="checkbox"/> Administrator
<input type="checkbox"/> Artist/Writer	<input type="checkbox"/> Clerical worker	<input type="checkbox"/> Computer Programmer
<input type="checkbox"/> Counselor	<input type="checkbox"/> Consultant	<input type="checkbox"/> Crafts/Trades/Construction
<input type="checkbox"/> Designer	<input type="checkbox"/> Doctor	<input type="checkbox"/> Farming
<input type="checkbox"/> Financier	<input type="checkbox"/> Fishing/Forestry	<input type="checkbox"/> Full time student
<input type="checkbox"/> Homemaker	<input type="checkbox"/> Law	<input type="checkbox"/> Law Enforcement
<input type="checkbox"/> Librarian	<input type="checkbox"/> Manager/Supervisor	<input type="checkbox"/> Medical Service
<input type="checkbox"/> Minister	<input type="checkbox"/> Musician	<input type="checkbox"/> Nursing
<input type="checkbox"/> Planner	<input type="checkbox"/> Scientist	<input type="checkbox"/> Social Worker
<input type="checkbox"/> Sales/Retailer	<input type="checkbox"/> Therapist	
<input type="checkbox"/> Educator (indicate: <input type="checkbox"/> Teacher <input type="checkbox"/> Administrator)		
<input type="checkbox"/> Other: _____		
10. Education level (e.g., High School = 12, College Junior = 15) _____ years
11. Please indicate Grade Point Average (GPA) if known: _____

GENERAL SURVEY (page 2)

12. Enrollment level at UAA:
☐ Freshman ☐ Sophomore ☐ Junior
☐ Senior ☐ Graduate ☐ Non-Degree Seeking
13. If degree seeking, what is your major? _____
14. Is this course required for your degree? ☐ Yes ☐ No
15. Is this your first course at UAA? ☐ Yes ☐ No
16. Please indicate the number of previously successfully completed:
Telecourses _____ On-Campus courses _____
-)

Appendix D
Computer Generated Kolb's LSI Results

Printout of Survey 999.DBS

03-02-1993

Form ID: 999

CE	RO	AC	AE
1	4	3	2
1	4	2	3
1	2	3	4
1	4	3	2
1	3	4	2
1	4	2	3
2	4	1	3
1	3	2	4
1	4	2	3
4	2	1	3
4	3	1	2
4	2	1	3
22	39	25	34

AC - CE = 3 AE - RO = -5

Learning Style is Diverger

Appendix E
General Questionnaire Panel

General Questionnaire Panel

Louise Fowler
Director Distance Education Services
And Telecommunications, UAA

Gretchen Bersch, Ph.D.
Professor Adult Education
Chair of Developmental Education Department
School of Education, UAA

Helen Barrett, Ph.D.
Coordinator Alternative Education Program
School of Education, UAA

Bruno M. Kappes, Ph.D.
Professor Psychology Department
College of Arts and Sciences, UAA

Appendix F
Student Letter

To: Survey Participants

Enclosed are three questionnaires that we would appreciate your assistance in completing.

These questionnaires have been distributed to students enrolled in Spring 1993 Psychology 111 courses. The information obtained from these questionnaires will be used as part of a research study and, more importantly, be used to help develop better on-campus, video tape, and television instructional programs. Two (2) extra credit points will be given by your instructor for participation in the survey to count toward your final grade. You may elect not to take part in this survey, or choose not to answer select questions on the General Survey, with no harmful consequence to you.

To keep your responses and final class standing confidential, each set of forms have been assigned a unique identification (ID) number. All records of answers to these questionnaires will be kept by these ID numbers. Your name and your ID number will appear together in only one place, and that is on the release form. **THE BOTTOM PORTION OF THE RELEASE FORM, WHICH CARRIES THE ID NUMBER, WILL BE REMOVED AT THE END OF THE DATA GATHERING PERIOD (MAY 1993) AND SENT TO THE RESEARCHER.** Final grades will not be provided to the researcher. Only a "Pass" or "No-Pass" indicator will be entered next to the appropriate ID number by a UAA administrative staff member before releasing the results to the researcher.

Your willing participation in this survey is appreciated. Please keep this letter for your records and ID Number reference. Please return the questionnaires in the self-addressed stamped envelope.

Thank you for you time, consideration, and cooperation.

Michael R. Anderson
Research Assistant
Distance Education and
Telecommunication Services
University of Alaska Anchorage

Appendix G
Letter of Agreement

PARTICIPANT AGREEMENT

University of Alaska Anchorage
College of Community and Continuing Education

Project Title: Adult Learner Learning Style Survey

I understand the purpose of doing this study is to gather information about the learning styles of adult learners enrolled in distance delivery telecourses and on-campus courses at the University of Alaska Anchorage. Participation in this study is voluntary. I understand that I may refuse to enter the study, choose not to answer a particular question, or may withdraw at any time without creating any harmful consequences to myself. I also understand that I may receive copies of my responses, an analysis of my learning style, and a summary of the results of this study when completed (I must contact the researcher and provide my ID number and mailing instructions). I further understand that it will take approximately one (1) hour to complete the questionnaires and that two (2) extra credit points will be added to my final grade points for participation in this study.

I understand that any information obtained about me from the research, including answers to questionnaires, will be kept strictly confidential. I also understand that any results of this study that are published will not identify me in any way.

I certify that I have read the preceding or it has been read to me and that I understand its contents and that I freely agreed to participate in this study. I can reach the principal investigator at any time I have questions by calling Michael Anderson (907) 333-8925. I have been provided a copy of this agreement.

Thank you for your time and cooperation.

Signed: _____ Date: _____

For Office Use Only

ID: _____

[] Pass

[] No Pass

Course: _____

Section: _____