



An investigation of the perceived barriers to undergraduate education for non-traditional students at Montana State University--Northern
by Carol Lynn Green

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education
Montana State University
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Abstract:

Shifting population demographics, societal changes, and expanding technology have contributed to a major change in student enrollment and participation of the adult learner in postsecondary institutions. While the number of traditional age college students enrolling in post-secondary institutions has declined, the percentage of non-traditional age students enrolling in colleges and universities has steadily increased. The majority of these non-traditional students, though intellectually capable of succeeding and highly motivated, are also uniquely challenged.

The purpose of this study was to investigate the perceived barriers to educational participation held by non-traditional freshmen at Montana State University—Northern; and how the variables of age, gender, marital status, number of children, race, employment status, income, college enrollment status, and program of study affect the perception of categories of barriers. The study further investigated to see if there was a typology of adult learners who clearly identify certain items as barriers.

Using a portion of an earlier questionnaire used by Carp, Peterson, and Roelfs, respondents were asked to indicate the degree to which an item was perceived to be a barrier to their participation. Items were further categorized using Patricia Cross's conceptual framework of barriers as being institutional, dispositional or situational. A series of discriminant analyses were conducted to determine the affect of the descriptor variables of age, gender, marital status, number of children, race, employment status, income, college enrollment status, and program of study. With the exception of number of children, and race, categories of perceived barriers were not useful in distinguishing similar groups of non-traditional freshmen at Montana State University-Northern. Cluster analyses identified four distinct groups of non-traditional freshmen students. Focus groups and interviews were conducted to further clarify the results of the analyses. This investigation provided insight into the perceived barriers and recommendations for future recruitment and retention of non-traditional students in higher education.

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EDUCATION FOR NON-TRADITIONAL STUDENTS AT
MONTANA STATE UNIVERSITY--NORTHERN

by

Carol Lynn Green

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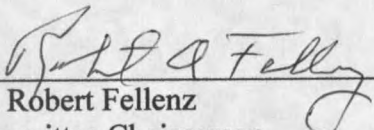
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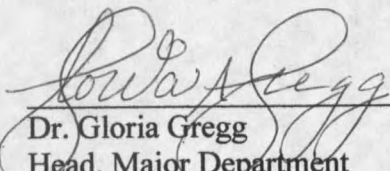
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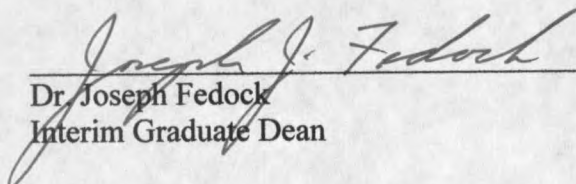
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ABSTRACT

Shifting population demographics, societal changes, and expanding technology have contributed to a major change in student enrollment and participation of the adult learner in postsecondary institutions. While the number of traditional age college students enrolling in post-secondary institutions has declined, the percentage of non-traditional age students enrolling in colleges and universities has steadily increased. The majority of these non-traditional students, though intellectually capable of succeeding and highly motivated, are also uniquely challenged.

The purpose of this study was to investigate the perceived barriers to educational participation held by non-traditional freshmen at Montana State University--Northern; and how the variables of age, gender, marital status, number of children, race, employment status, income, college enrollment status, and program of study affect the perception of categories of barriers. The study further investigated to see if there was a typology of adult learners who clearly identify certain items as barriers.

Using a portion of an earlier questionnaire used by Carp, Peterson, and Roelfs, respondents were asked to indicate the degree to which an item was perceived to be a barrier to their participation. Items were further categorized using Patricia Cross's conceptual framework of barriers as being institutional, dispositional or situational. A series of discriminant analyses were conducted to determine the affect of the descriptor variables of age, gender, marital status, number of children, race, employment status, income, college enrollment status, and program of study. With the exception of number of children, and race, categories of perceived barriers were not useful in distinguishing similar groups of non-traditional freshmen at Montana State University--Northern. Cluster analyses identified four distinct groups of non-traditional freshmen students. Focus groups and interviews were conducted to further clarify the results of the analyses. This investigation provided insight into the perceived barriers and recommendations for future recruitment and retention of non-traditional students in higher education.

CHAPTER 1

INTRODUCTION

Changing Enrollment Patterns

A steadily aging population, societal changes and expanding technology are factors that have contributed to a major shift in student enrollment and participation of the adult learner in postsecondary institutions. The typical student of the future will not be the traditional 18-24 year old recent high school graduate. Instead, many of the students enrolling in postsecondary institutions are likely to be older, less traditional.

From 1970 to the present students over the age of 25 have been enrolling in colleges and universities as full-time or part-time students in record numbers. When counting both part-time and full-time enrolled adult students the proportion of college students over the age of 40 doubled from 1970 to 1993 (Gose, 1996).

In 1970 72% of the students enrolled full-time in postsecondary institutions were under the age of 25. Twenty eight percent of the students were 25 or older. In 1985 58% of the students enrolled were under 25, while 42% of the students were 25 or older (Snyder, 1987). While the number of traditional age college students enrolling in postsecondary institutions was declining, the percentage of nontraditional students enrolling in colleges and universities during the 1980's was steadily increasing (Hu, 1985). In the fall of 1995 only 54.5% of students enrolled full-time in postsecondary institutions were under the age of 25 while the remaining 46% of students were 25 or

older (Bureau of Census Report, 1990). This changing enrollment profile is predicted to continue into the next century (Brazziel, 1989; Cross, 1986). The increase in the number of students over the age of 25 enrolling in postsecondary institutions is reflective of changing population demographics in the United States.

Changing Population Demographics

An important trend in population demographics is the overall aging of the population. The median age of the population in the United States in 1996 was 34.5. This figure is expected to increase to 36.4 at the turn of the century and rise to 38.1 in the year 2050. By the year 2080 the median age in the United States is projected to be 43.9 (Bureau of Census Report, 1990).

Declining birthrate and increased longevity are two factors that contribute to an increase in a population's median age. In the United States the birthrate declined by 3 percent in the first quarter of 1995 and again in the months following. This downward trend in birthrate observed since 1991 is expected to continue through the turn of the century (Bureau of Census Report, 1990). Along with a declining birthrate, increased longevity has also raised the median age in the United States. Better health care, nutrition, and increased attention to physical fitness has resulted in a population of Americans that live longer.

It is predicted that by the year 2000 67% of the population will be over the age of 25. In the year 2030 21.8% of the population, or 66 million people, will be 65 and older with the number of people over the age of 85 tripling (Harper, 1990). By 2050 only 24% of the population will be under the age 18, a decrease from 26% in 1996. The majority

of the population, 56%, will be between the ages of 18 and 65. By 2080 this number increases to 74% (Bureau of Census Report, 1990).

Postsecondary Institutional Enrollment Patterns

At the same time that the median age of the population in the United States is increasing, the number of students enrolled in postsecondary institutions is expected to increase from a little over 14 millions students in 1997 to over 15 million at the turn of the century and over 16 million students by the year 2007 (Bureau of Census Report, 1990). With a declining pool of 18-24 year olds, as indicated by the 1990 Census Report, a large percentage of the increase in enrollment will come from students over the age of 25. Longer life-span, improved health, and increased time for leisure activities has provided the opportunity for many adults to seek fulfillment through college enrollment. Education is more often being seen as a factor for the improvement of life and many Americans are taking advantage of life-long learning (Byrd, 1990).

Demographic changes only partly explain the increased enrollment of students over the age of 25 in postsecondary institutions. Changes in society and advanced technology have had a large impact on enrollment profiles. Changes in family structure, single parent homes, divorce, death, and a myriad of personal circumstances have brought adult men and women to the doors of higher education.

Many women who have been lifetime homemakers are returning to the labor force following changes in their personal life. The death of a spouse, a divorce, and children growing and leaving home are among the many factors influencing a woman's decision to enroll in college. Economic demands and the need for two incomes have also

necessitated a return to the work force for many women. Many of these women seek education as a means of retraining for work outside the home.

Women entering college are motivated by a variety of factors including (a) a desire for self-improvement and self-actualization, (b) vocational goals, (c) role status within their family and/or community, (d) family demands, (e) a need for increased social contact, (f) a pursuit of humanitarian interests and activities, and (g) a desire for improved self-knowledge (Clayton & Smith, 1987; Mohny & Anderson, 1988). A large number of adults return to college after having dropped out or stopped out of education at an earlier time (Aslanian, 1990). For many, as they move through their life cycle, learning becomes a function of adapting to or coping with milestones, developmental tasks, or changing events that confront and challenge (Havighurst, 1952; Kimmel, 1974; Knox, 1977; Neugarten, 1977). Frequently adults are faced with changing job requirements or are making career changes that force them to re-enter higher education in order to survive or advance in the job market. Adult education is often driven by corporate and national economic policies (Long, 1987).

The reduction of large corporate structures, a smaller military, the closing and/or combining of state and federal agencies, and the downsizing of factories and once stable industries have resulted in many displaced workers looking to higher education for retooling and retraining. In addition, many adults choose to seek new ways to earn a living. It is not uncommon for people to change jobs several times in their work life. Career changes often necessitate training or advanced education.

Perhaps the greatest change in American society has been in the area of technology. Changes in technology have come as a challenge to American workers as they strive to keep current and remain competitive in a global marketplace. Rapid

advancements in communication, transportation, engineering and health care have required the continual retraining and upgrading of workers' skills. Advanced technology has caused the shift to an information society, creating dramatic changes in the work force. In some instances workers have been replaced by new technology and in order to survive have had to seek new ways to earn a living. Education has become the key to this survival (Cross, 1986). The ever upward progression of an educated adult population and workforce, and increased educational requirements for high paying jobs might be the single most powerful factor in the continued influx of adult students on college campuses (Brazziel, 1989).

Changes in leisure patterns and the desire for self-fulfillment are additional reasons for adults returning to college. Higher education has become the bridge to reaching new personal and career goals (Puryear & McDaniels, 1990). Many adults are motivated to pursue higher education as a means to expand their social contacts. The simple desires for increased social contact cause many adults to enroll in courses at colleges and universities (Rogers, Gilleland & Dixon, 1987). For some adults an interest in increased intellectual stimulation and growth is a strong determinant in their pursuing a college course or degree. Higher education in the past twenty years has become not only the gatekeeper for many blue collar and white collar positions, but also the facilitator of lifelong learning and growth (Craig, 1997).

Montana State University--Northern

Montana State University--Northern serves a large, rural, and often isolated area of a large, rural, and mostly isolated state. The fall 1997 enrollment was 1449 students. The average age of the freshmen student in 1996 was 23.4. This number does not reflect

part-time or non-degree seeking students who are enrolled in classes. MSU/Northern serves a large part of the state from North Dakota to Idaho as well as three Canadian provinces. The main campus located on approximately 105 acres within the city of Havre functions as a regional, multi-purpose educational center. An extended campus in Great Falls and course offering through telecommunications and at remote sites throughout the state provide educational opportunities to place-bound students.

While the average age of the student at MSU/Northern is increasing, programs and support services for the non-traditional student are slow in development. The retention of all students is a major concern at MSU/Northern and the needs of this growing population are issues of immediate concern.

Problem

For a variety of reasons, postsecondary institutions have been slow in responding to the needs of non-traditional students (Steltenpohl & Shipton, 1986). Financial restraints, lack of knowledge about this group of learners, and overall business as usual has pre-empted many institutions from providing comprehensive services and programming aimed at serving the nontraditional student in higher education. However, a steadily aging population, societal changes, and expanding technology resulting in a major shift in student enrollment and the increased participation of the adult learner in higher education has gained the attention of colleges and universities. Most recently, administrators, faculty, and professional staff are beginning to acknowledge the need to focus on the adult learner as a viable member of the college campus community. As admission counselors and college registrars are continuing to encounter more and more students enrolling over the age of 25 it has become increasingly clear that meeting the

needs of this burgeoning population is, and will continue to be, a critical part of enrollment management and retention programs if institutions hope to attract and retain the non-traditional student until graduation (Noel, Levitz & Saluri, 1985).

The majority of non-traditional students enrolled in postsecondary institutions, though intellectually capable of succeeding and highly motivated, are also highly challenged. Research supports this subpopulation on college and university campuses as one confronted with unique barriers to their academic success. In his book, What Matters in College?, Alexander W. Astin states: "Anyone who has worked with adults and part-timers knows full well that the issues and problems confronting the adult and the part-time student are quite different from those confronting the traditional-age full-time student" (Astin, 1993, p. xviii).

Unfortunately there has not been enough attention given to identifying the specific barriers that non-traditional students face when pursuing an undergraduate education. Only a handful of studies have investigated the perceived barriers held by the adult learner in the collegiate setting. In many cases the non-traditional student is included in studies conducted on behalf of the traditional age college student. Astin notes in his book that it would be a serious mistake to lump non-traditional students together with traditional age students in a single study (Astin, 1993).

Purpose and Significance of the Study

This study investigated the perceived barriers to educational participation held by nontraditional freshmen students at Montana State University--Northern, a small four year public postsecondary institution; and how the variables of age, gender, marital

status, number of children, race, income, employment status, and college enrollment status affect the perception of situational, institutional and dispositional barriers.

A greater understanding of the effect of these variables on barrier perception will enable the enrollment management team, the retention coordinator, and administrators to plan more effectively for meeting the perceived needs of this growing segment of MSU-Northern's student population.

Research Questions

Data for the study was collected from non-traditional freshmen students enrolled at Montana State University--Northern. Students responded to thirty questions from the "Learning, Interests and Experiences of Adults" questionnaire used by Carp, Peterson & Roelfs in 1972. The investigation sought to answer the following research questions:

1. What are the perceived barriers to educational participation held by non-traditional freshman students at MSU-Northern?
2. Do variables of age, gender, marital status, number of children, income, employment status, and race affect non-traditional students' perception of barriers?
3. Does credits carried effect the number of institutional, situational or dispositional barriers reported by the student?
4. Does the type of program the student is enrolled in effect the number of situational, dispositional and institutional barriers reported by that student?
5. Is there a typology of adult learners who clearly identify certain items as barriers to participation?

Focus groups and interviews were conducted with non-traditional students to gather data to assist in naming and describing groups of non-traditional students. Students were asked to share their experiences as new freshmen and recommendations they had for improving the non-traditional freshmen experience.

Limitation

The "Learning Interests and Experiences of Adults" questionnaire used by Carp, Peterson, & Roelfs was designed for use with adults between the ages of 16-60 who were not enrolled as full-time students. The questionnaire used in this investigation is taken from a portion of this original questionnaire. Any comparison of the results of this investigation with that of Carp, Peterson, & Roelfs must be undertaken with caution as the respondents in the current study were all enrolled at MSU/Northern and may already have overcome a certain number of barriers by virtue of their enrolled status.

In addition, although the entire population of non-traditional freshmen students was sent a questionnaire, this population may not be representative of the universe of non-traditional students. MSU/Northern is a small public institution located in a small rural community in North Central Montana. The perceived barriers of this population may or may not be the same as those in another setting.

Operational Definitions

Academic Advising: Information related to course selection and registration provided by a designated faculty member in the student's major department or program area.

Academic Support Center: The academic support center provides a comprehensive range

of career, academic, testing, placement, counseling, guidance, disabilities, and other programs to enhance student personal and professional preparation for a successful future.

Associate Degree Programs: Two-year programs requiring the completion a minimum of 64 credits with a cumulative GPA of 2.00 or higher with a minimum of 30 credits in an approved program. This includes the completion of all General Education requirements plus course requirements under specific programs. Certain restrictions apply to courses taken and GPA.

Bachelor Degree Programs: All bachelor degree programs require the completion of the General Education requirements, plus course requirements under specific programs. This involves a minimum of 120 credits with a cumulative GPA of 2.00 and a GPA in both the major and minor of at least 2.25 (some programs include additional grade requirements)

Certificate Programs: Certification awarded to students who complete specialized approved programs of study. These certifications may not be academic degrees. Students completing certificate programs receive a Certificate of Completion from the department but do not receive a diploma or participate in commencement ceremonies.

Degree-Seeking: A student who plans to pursue a degree at Montana State University-Northern.

Freshmen Status: 0-30 semester credits earned.

Full-time Student: Enrolled for 12 or more semester credits.

General Education Requirements: The general education core develops areas of appreciation not necessarily provided for in the specialized areas of the major, and provides a sense of the interrelationship between the various disciplines. The general education program makes available to the student the tools and awareness necessary for lifelong learning and for active, literate participation in today's technological society.

Half-time Student: Enrolled for six or more semester credits, but fewer than 12.

Learning Experience Assessment Program (LEAP): Students may earn credit for life and work experiences.

Non-Degree-Seeking: A student who does not plan to pursue a degree at Montana State University-Northern.

Non-Traditional Students: Students who have graduated from high school at least three years prior to enrollment.

Part-time Student: Enrolled for fewer than 12 semester credits.

Student Support Services: A federally funded support program for students from disadvantaged backgrounds who show an academic need (i.e. first-generation college student, low income, disabled) designed to provide basic skills instruction, individualized tutoring, personal and career counseling.

Transitional Studies Courses: College exploration courses designed to examine academic expectations and increase student success, promote better study skills and address life skills and career preparation.

CHAPTER 2

LITERATURE REVIEW

Non-Traditional StudentDefining the Adult Learner

In an early study of adult education Johnstone & Rivera define the adult learner as anyone either (1) 21 or over, (2) married, or (3) head of a household (Johnstone & Rivera, 1965). This description was an attempt to arrive at a single definition for the term adult learner. In a continuing investigation of adult learning theory this definition has been challenged and expanded. In their text, Adult Education Foundations of Practice, Darkenwald & Merriam (1982) stress that it is important to understand that "no universally acceptable definition is possible, for any definition must ultimately be based on certain assumptions and value judgments that will not be acceptable to everyone" (p. 8). Elias & Merriam, in their text Philosophical Foundations of Adult Education, note that the absence of one single definition for the adult learner is directly related to the major differences among various philosophical schools of thought on what constitutes a learning activity. This study attempts to examine the adult learner in postsecondary education.

Adulthood is a developmental period much like childhood and adolescence are developmental periods. Adult development includes periods of stability during which confidence and self-esteem are built. These periods are separated by times of tension as

new challenges are tried. Education serves as a key function in assisting the adult through these periods of challenge and in providing a sense of direction. For the adult seeking challenge, growth or direction in life the return to college encourages an optimistic approach to life accompanied by a feeling of assertiveness and a sense of direction (Knox, 1977). Transitions, movement from one status to another in job and life stages, often require new knowledge, skills or credentials. Transitions between stages are hardly smooth, instead they are often punctuated by stress and personal reassessment. Each transition marks a displacement from equilibrium. Transitions challenge adults and require them to grow. Individuals respond differently to change and challenge. Some adults respond with action while others withdraw and reflect. For many, action means acquiring more education (Levinson, 1978).'

Triggers, the events that precipitate the timing of a change in status quo are quite often significant events that precipitate a decision to make a life change. Events such as marriage, birth of a child, death of a loved one, or a divorce can become triggers for the adult (Aslanian & Brickell, 1980). An adult's decision to enroll in college often comes as the result of just such a trigger. In most cases adults participate in learning in response to a felt need or goal which motivates them to pursue education (Seaman & Fellenz, 1989).

The Adult Learner in Postsecondary Institutions

The adult learner is often defined by the learning activity and the setting in which the learning activity occurs. The adult learner enrolled in postsecondary institutions is referred to interchangeably in the literature as the non-traditional student, the adult learner, or the re-entry student. The non-traditional student has been described as any student 25 years of age or older (Brazziel, 1987). The age 25 seems to be the typical time

to be classified as a non-traditional student (Copland-Wood, 1986; Groves & Groves, 1980; Mishler, Fredrick, Hogan, & Moody, 1982).

Federal and state governments have provided postsecondary institutions with additional definitions of non-traditional students. The federal government defines a non-traditional student as one who has been out of high school one year or more prior to enrollment in a postsecondary institution. The state of Montana and the Board of Regents have expanded this definition to define a non-traditional student as any student with a lapse of three or more years between high school graduation and college enrollment. Both of these definitions apply only to freshmen degree seeking students who represent only a portion of the adult learners in higher education.

Non-traditional students enrolled in postsecondary institutions fall into two general categories: (1) students seeking the completion of a degree or certification program, or (2) students taking coursework not leading to the completion of a degree or certification program and/or students enrolled in non-credit courses. In each of these categories a student may be enrolled full-time or part-time. The student may be enrolled as a first time freshman or as a returning student who has stopped out of college for a period of time, but is still a freshman according to credits earned.

In the case of students who enroll in coursework not leading to the completion of a degree or program certification these students are often admitted to the college on a non-matriculated basis or are enrolled through a Continuing Education or Extended Studies Program (Seaman & Fellenz, 1989). They possess a variety of prior experiences and many of them have already graduated from college and successfully accomplished one or more career goals. A large number of them are still working and their reasons for enrolling in a course may range from purely social to academic. Many return to school in

order to meet continuing education requirements or for re-certification. This group is not looking for a four-year or even a two-year program, but instead, a choice of courses that combine to provide the means for career development or enhancement and job security. Many are seeking ways to complete the requirements for occupational credentials or to advance in their present careers. In this group is a large number of learners who view education as a way to enrich their personal lives and foster intellectual stimulation. Life-long learning is the emphasis for this group and this emphasis has brought thousands of non-traditional students to college campuses.

Many colleges also provide opportunities for the adult learner to enroll in courses for non-credit. Non-credit adult education dates back to the early 1800s. Most non-credit adult education programs are provided through a delivery system adjacent to or in conjunction with the regular courses offered at a college or university. The titles of such programs differ depending upon the institutions, but the content of the courses offered is usually related to continuing professional education (Darkenwald & Merriam, 1982).

Students enrolled as degree or certification seeking have a course of study that is prescribed by the university and their learning is evaluated by the institution in a formalized manner. Their success is measured by their forward progress towards the completion of their academic degree. These students enroll in required classes and are expected to complete all coursework leading to the awarding of a degree or certificate. Students in this category may be enrolled as either a full-time or part-time student. Many postsecondary institutions offer degree credit programs for part-time students through evening school, summer school or weekend programs (Darkenwald & Merriam, 1982).

Students in categories, degree seeking or non-degree seeking and full-time or part-time encompass a broad cross section of the population. These students have been

categorized as degree seekers, problem solvers, and enrichment seekers (Pappas & Loring, 1985). Included are growing numbers of women, displaced homemakers, career changers, immigrants, second career retirees, single parent families, and individuals seeking professional development (Cross, 1981).

Researchers have observed some characteristics common to non-traditional students. Many of these adult learners are highly motivated and achievement oriented, measuring success in terms of goals accomplished rather than credentials or diplomas attained (Cohen & Brawer, 1982). They are independent and self-directed in their learning (Knowles, 1980); and as independent and self directed learners expect the learning environment to provide opportunities for them to select learning activities that fit their backgrounds and are relevant to their life experience.

The cost of education is a hardship for many adult learners and they don't want to waste time or money. They expect value for their time and money and many possess a strong consumer orientation toward education (Adams, 1989; Benshoff, 1991). The adult learner is one whose learning activities are secondary to other social or economic roles many of them enrolling in school while having multiple out of school commitments (Loewenthal, 1980; Young, 1984). They are unwilling to continue to participate in a course or program of study if they perceive they are not making progress toward their goal or if the material is irrelevant to them (Ulmer, 1980). They expect meaningfulness of learning and activities and generally prefer more active approaches to learning new material (Knowles, 1980; Sakata, 1984).

Non-traditional students bring a great deal of prior experience with them to their new learning environment and seek to integrate new information with their prior experience. This emphasis on the integration of new information into their life and work experience

is a unique characteristic of adult learners (Benshoff, 1991). For many non-traditional students their prior experience is what helps them assimilate and accommodate new information (Kidd, 1973).

While most non-traditional students come to the learning environment with a variety of prior experiences some are unaware of the value of these experiences and/or discount their importance in the new setting. One paradox of non-traditional students is although they may be highly motivated to learn, as a group they often lack confidence in their ability to do so. Many doubt their ability to succeed and require continuing encouragement. For many the return to college at a later age creates feelings of embarrassment and insecurity. Age norms and associated expectations of developmentally appropriate tasks are directly related to socially defined timing (Nuergarten, 1979). Social recognition and acceptance of these norms further ingrains them and establishes an unquestionable time frame for the completion of certain developmental tasks. High school seniors are expected and encouraged to proceed to college. Many are not ready to do so and an equal number are unable to afford to do so. Many must postpone college entry, missing the developmentally appropriate window of opportunity for college attendance. The non-traditional degree seeking college freshman fits this category. These students understand that they are late in enrolling in college. Even though many of them have succeeded in careers, competed in the workplace, and have raised or are raising families they still arrive on campus with feelings of embarrassment and insecurity. They look around and see younger faces, not only faces of other students, but also the faces of younger faculty and advisors, a reminder to the older student that they are chronologically out of step.

The first days on campus can be overwhelming for any new freshmen, but especially so for the non-traditional student. Having no prior experience with college they are totally unfamiliar with the landscape of higher education. For many, the college campus is like entering a foreign country; there is a language and culture to be learned. Policies and procedures are new and confusing. Registration and course selection is confounded by a lack of institutionally savvy. Faculty and advisors are often younger than the student is and at the same time perceived as authority figures. Feelings of insecurity and inadequacy emerge as the non-traditional students attempt to move through the bureaucracy of higher education. Anxiety is a big problem and the fear of competing with younger students and losing self esteem are reoccurring themes in the literature on non-traditional students in postsecondary institutions (Knox, 1980; Krager, Wrenn & Hirt, 1990; Lowenthal, 1980).

Many non-traditional students are unable to relate their college experience to their old life. Some experience feelings of disassociation from their families as they seek admittance into the new culture of higher education. This is especially true for first generation college students and some minority students for whom a college education represents a breaking away from their peer group at home (Terenzini, 1991). A perceived feeling of diminished importance within the culture of higher education coupled with feelings of detachment from previous work and family, and confusion about the culture of education are significant problems for the non-traditional students.

Another problem of many non-traditional students is a lack of adequate study-skills. Study skills used in high school have gone unused and need brushing up. Some non-traditional students find themselves arriving late at the doors of higher education because their high-school work did not prepare them for college admission or they didn't

like school. While some non-traditional students need refresher courses or brushing up with note taking, college study reading strategies and test taking skills, others need more intensive instruction in basic skills. For some there is a period of learning readiness, time needed to activate and access prior knowledge. Others need placement in developmental courses. Any of these scenarios is seen as a delay to non-traditional students. Most of them are on a very tight time frame. They want to finish their college work as quickly as possible in order to get on with their lives. The realization that they must enroll in developmental courses or participate in remedial programs threatens this timetable. Their lack of study skills coupled with their need to finish course work as quickly as possible creates additional tension for these students.

Non-traditional students often have the added stress of trying to balance school, work and family, leaving no time for socialization at school. There is little if any time to develop on campus support groups or engage in extra-curricular campus activities. Students who participate in campus activities, join clubs, and take part in school projects are more likely to stay in school than students who do not (Tinto, 1987). Non-traditional students don't have the time for this type of institutional bonding. They often have no interest in activities planned for traditional age freshmen and in many instances no time. This lack of connectedness to the institution and to their peers is often a reason for dropping out of school (Upcraft & Gardner, 1989).

The number of students enrolled in postsecondary institutions is expected to increase to over 15 million by the turn of the century (Bureau of Census Report, 1990). With a declining pool of 18-24 year olds, as indicated by the 1990 Census Report, a large percentage of the increase in enrollment will come from students over the age of 25. The non-traditional student will no longer be the anomaly, but rather the norm in higher

education. The barriers, which prohibit their participation or impede their progress, are becoming important areas of discussion for college administrators and faculty. Feelings of inadequacy, incompetence, and marginality, coupled with an uncertainty about the policies, purposes, and culture of higher education and poor academic skills lead many non-traditional freshmen students to the revolving door.

Barriers

The aging of the population, coupled with a decline in college applicants between the ages of 18-24 presents a challenge for postsecondary institutions as they plan for the next decade in higher education. For many institutions survival will depend upon their ability to attract the older student to the doors of higher education. An awareness of the deterrents or barriers faced by the non-traditional student is an essential first step in recruiting these students. A careful analysis of the deterrents/barriers the adult learner encounters in the pursuit of formal learning provides direction for postsecondary institutions whose goal it is to attract and retain the non-traditional student in higher education.

One of the most widely researched questions in adult education is the examination of why adults do or do not participate in adult education. Several researchers have closely examined the reasons given for non-participation. Using factor analysis many of these barriers have been identified within categories.

John W.C. Johnstone and Ramon J. Rivera were the first of many researchers to provide a factor analysis of barriers. They found that barriers to participation fell naturally into two discrete categories, internal and external. Internal barriers included dispositional factors and external barriers were situational in nature (Johnstone & Rivera,

1965). In an attempt to link types of barriers to differences in gender, age, and socioeconomic status Johnstone and Rivera found that older adults cited more dispositional barriers while younger adults and women cited more situational barriers. Person with low socioeconomic status cited both situational and dispositional barriers as impacting their participation in educational activities (Johnstone & Rivera, 1965).

In 1972, Abraham Carp, Richard Peterson, and Pamela Roelfs of Educational Testing Service (ETS) conducted a survey of adult learning for the Commission on Non-Traditional Study. The purpose of this study was to describe in detail the potential market for adult learning and to analyze the learning activities of adults already engaged in learning (Carp, Peterson, & Roelfs, 1973).

Using a questionnaire containing multiple choice questions respondents were asked to indicate their interests in subject matter and learning modes, preferred place of study, time factors in learning, reasons for learning, willingness to pay, guidance needs, and perceived barriers to learning.

A portion of the questionnaire dealt with barriers to participation in learning activities. This section on barriers contained 24 statements of things that might prevent the respondents from participating in learning activities. Any of these statements which the respondent felt were important were to be circled. Data from this section were analyzed by finding a percentage of responses to each of the 24 items based on age, gender, race, marital status, age and gender, race and gender, geographic region, and type of community in which they lived.

This study did not classify the barriers into categories, but considered the effect of selected variables and combinations of these variables upon perception of each individual

barrier. As in the Johnstone and Rivera study, age and gender were shown to affect the results. Socioeconomic status was not a category in this study.

Patricia Cross, in a later study, grouped the 24 non-participation items from the Carp, Peterson, and Roelfs questionnaire and identified each statement as being situational, institutional or dispositional in nature (Cross, 1981).

Cross defined situational barriers as those barriers, which relate to an individual's life context at a particular time, including both the social and physical environment surrounding one's life. Issues revolving around cost and lack of time, lack of transportation, child care and geographic isolation is examples of situational barriers that include both one's social and physical environment (Cross, 1979).

Institutional barriers are those "erected by learning institutions that exclude or discourage certain groups of learners because of such things as inconvenient schedules, full-time fees for part-time students, restrictive locations and the like" (Cross, 1979, p. 98).

Other types of institutional barriers include the lack of attractive or appropriate courses being offered and institutional policies and practices that impose inconvenience confusion or frustration for adult learners. These barriers are most generally structural in nature and can be grouped into five areas: scheduling problems; problems with location or transportation; lack of courses that are interesting, practical or relevant; procedural problems and time requirements; and the lack of information about programs and procedures (Cross, 1981). Informational barriers are often grouped under the heading of institutional barriers. These barriers involve the failure in communicating information on learning opportunities to adults. Included in informational barriers is also the failure of

many adults, particularly the least educated and poorest, to seek out or use the information that is available (Cross, 1981).

Dispositional barriers, also referred to as attitudinal barriers, and in later work by Darkenwald as psychosocial barriers, are those individually held beliefs, values, attitudes or perceptions that inhibit participation in organized learning activities. Adults who say, "I am too old to learn," "I don't enjoy school," or "I'm too tired" are voicing dispositional barriers. Dispositional barriers can relate to the learner or to the learning activity. In the case of the learning activity dispositional barriers can be expressed by the learner in terms of negative evaluations of the usefulness, appropriateness and pleasurability of engaging in the learning. The process of learning may be perceived as difficult, unpleasant or even frightening. Lack of confidence in one's ability to learn is a commonly voiced reason for non-participation. Closely related to this perception are feelings that any effort to learn will only result in failure. Low self-efficacy and evidence of prior poor academic performance are further examples of dispositional barriers (Cross, 1981).

Social forces, within the environment can perpetuate dispositional barriers. In many cultures participation in organized education is viewed as inappropriate. Pressures from family and peer group members to conform to existing values and norms can be strong barriers to participation (Darkenwald & Merriam, 1982).

Cross's conceptualization of the 24 items from the Carp, Peterson and Roelfs questionnaire as being institutional, dispositional or situational is arbitrary. In addition, many of the statements were noted by Cross herself to fall within more than one of the three categories. However, Cross's placement of each of the 24 items into one of the three respective categories of barriers is supported by other authors and researchers

(Brookfield, 1986; Charner, 1980; Charner & Fraser, 1986; Cross & McCartan, 1984; Thiel, 1984).

In other investigations, Darkenwald and Merriam noted four general categories of barriers to participation: situational, institutional, psychosocial and informational (Darkenwald & Merriam, 1982). Darkenwald, borrowing from Cross's earlier work on categories of barriers, has renamed and further defined Cross's dispositional barriers as psychosocial barriers. Psychosocial barriers include beliefs, values, attitudes and perceptions about education or self as a learner. Darkenwald's fourth category, informational, relates to the awareness and availability of information about learning opportunities. This category may reflect the learner's lack of awareness as well as the institution's lack of effectively communicating information about programs.

Sharon Byrd, using the 24 items relating to perceived barriers from the Carp, Peterson and Roelfs study and Cross's placement of these barriers into institutional, dispositional and situational barriers, conducted a recent study on the perceptions of barriers to undergraduate education by non-traditional students at selected non-public, liberal arts institutions in the mid-south (Byrd, 1990). The purpose of Byrd's study was to learn what barriers are experienced by non-traditional students and how those variables of age, sex, marital status, number of children, employment status, income, and race affect the perception of situational, institutional, and dispositional barriers.

A small number of other studies have been conducted to determine barriers to adult participation in education in the collegiate setting (Claus, 1986; Gallay & Hunter, 1979; Hengstler, Haas & Iovacchini, 1984; Scanlan & Darkenwald, 1984). The results of these studies are consistent with Cross's conclusions identifying three general categories of barriers as situational, institutional and dispositional. These studies indicate that costs

associated with attending school are a major situational barrier, along with conflict between home and job responsibilities, child care, and transportation issues. Institutional barriers found to be of importance include a need for financial aid, access to administrative services, strict entrance requirements, restrictive policies, and perceptions of program benefits. Dispositional barriers reported were fear of rejection, low self-esteem, fear of school itself, lack of interest and commitment, unclear academic goals, and poor former academic achievement. It was further indicated by these studies that variables such as age, gender, race, and marital status affect perception of barriers to education by non-traditional students.

Darkenwald and colleagues have had the most consistent line of databased research in identifying the barriers to participation by adults in formal learning activities. This research includes the development of the Deterrents to Participation Scale (DPS) to assess barriers to learning in specific institutional settings (Scanlan & Darkenwald, 1984). Using the DPS with a sample of health professionals Scanlan and Darkenwald identified six factors that act as major deterrents to participation in formal adult learning activities (Scanlan & Darkenwald, 1984):

1. Lack of confidence
2. Lack of course relevance
3. Time constraints
4. Low personal priority for course
5. Cost
6. Personal problems

In additional studies using a revised version of the DPS with adult non-participants in the general public Valentine and Darkenwald generated a typology of non-participants. According to their analysis the adult non-participants in the general public cluster into five distinct groups or types. People who are deterred by:

1. Personal problems
2. Lack of confidence
3. Educational costs
4. Lack of interest in organized education
5. Lack of interest in available courses

An awareness of these typologies provides the postsecondary institution with information helpful in targeting resources for specific populations. Members of the first group listed above, type one learners, cite personal problems and family problems as deterrents to participation. The majority of the members of this group in Valentine and Darkenwald's study were young females with small children. When asked to further explain what was meant by personal and family deterrents the majority of this group cited issues relating to childcare and transportation.

Lack of confidence was cited by the second type of learners who have low self-confidence and are not sure they can succeed. These students need to be carefully transitioned into the institution. Orientation classes designed for this learner would include interaction with other non-traditional students and peer mentoring. Many of these students undergo a period of readiness to learn. They need a semester or two to brush up on their academic skills. Others need reinforcement and nurturing. Returning to school after a time away from academia can be frightening. Counselors and support staffs provide scaffolds for this group as they begin to grow in self-confidence and

independence. First semester classes should be chosen for this group with a high degree of attention given to maximizing opportunities for success.

The third type of learner cites cost as a barrier to participation in the learning. Improved access to financial aid opportunities, delayed payments, and money management seminars are ways of responding to this learner's perceived deterrent. In addition, many students have misinformation about college costs and overestimate the cost of attending. Accurate information, workshops, seminars, publications, help with filling out financial aid applications, and encouragement in seeking scholarship aid can provide needed assistance that can help to overcome this barrier.

The fourth type of learner is just not interested. They see no value in education and do not want to participate. This learner raises an ethical dilemma for the adult educator. Is it ethically correct to try and manipulate or change the opinion of this group? Darkenwald suggests no. His recommendation is to leave them alone. Once again, with limited resources and the increasing demand upon time and services attempting to change the mind of this learner appears to be a fruitless task.

The fifth type of learner cites relevance or interest as a deterrent. The courses being offered are of no interest to the learner. They value education and desire it for themselves but see nothing being offered of interest. The institution responds to this learner by providing accurate information about course offerings, asking questions, clarifying assumptions, and evaluating course offerings. In further attempts to identify a typology of learners Hayes and Darkenwald (1988) used the DPS with low literate adults.

One hundred and sixty adult basic education students responded to the questionnaire yielding five factors which best described the sample's reasons for nonparticipation:

1. Low self-confidence
2. Social disapproval
3. Situational barriers
4. Negative attitude to classes
5. Low personal priority given to education

Hayes used this information to build a typology of adult basic education students and concluded low-literate adults should not be treated as a homogeneous group in respect to their perception of barriers to participation. Further studies with adult basic education students yielded similar factors as barriers to participation (Beder & Valentine, 1990).

A number of studies on barriers to participation have examined barriers from a sociological perspective. Although psychological factors are important in an analysis of participation and barriers, participation is not merely a matter of motive or intent by participants. "It is something that is clearly related to both the individual's position in the social system and also to his/her position in the life cycle" (Jarvis, 1985, p.209). The learner may be constrained by social factors of which he/she is unaware generating from the social environment or from developmental demands of life cycle status. From a sociological perspective, place in the social system and place in life cycle have been found to be significant contributors to participation (Keddie, 1980; Westwood, 1980; Jarvis, 1985; Quigley, 1990; Courtney, 1991).

Socioeconomic status has been linked to participation rates in all cases.

Education is clearly a middle class construct, designed by the middle class using middle

class language and concepts of achievement motivation. In addition, middle class children and adults are socialized to participate in education, resulting in a self-selecting process of participation (Jarvis, 1985). The problem of attracting more participants from the lower socioeconomic strata is not one that lies with the nonparticipants, but within the system itself that has not provided adequately for access to this population (Keddie, 1980, p.65).

Those who would focus attention on the sociological deterrents suggest that by looking at only psychological explanations for participation the investigator focus primarily on the individual to the exclusion of the culture or society. If one looks at social structure rather than individual needs and interests one discovers very different explanations for nonparticipation. By analyzing participation from both a psychological and sociological perspective the researcher is better able to identify comprehensive strategies for increasing participation. By focusing on individual needs and motivation to the exclusion of social structure recruitment efforts center on the likes or dislikes of individual groups of students and their perceived needs. On the other hand, if participation and nonparticipation is seen as a function of social structure then recruitment efforts would focus on changing institutions and society in ways that facilitates participation of all groups. A combination of both practices would appear to yield the most desirable results.

The field of adult education has several models for explaining and predicting participation in learning activities. Some of these models emphasize the psychological and some link the individual with socioenvironmental forces.

Miller's social class theory (Miller, 1967) attempts to link the motivational needs hierarchy of Maslow (Maslow, 1954) with Lewin's force field theory (Lewin, 1947) to

explain not only why people participate, but also why there are large differences between social classes in what they hope to attain from participation. According to Maslow's hierarchy, fundamental needs of survival, safety, and belonging have to be met before status, achievement, and self-realization needs can be addressed. In terms of adult participation in higher education, Maslow's hierarchy of needs would predict that members of the lower socioeconomic class would be interested primarily in education that meets survival needs, mostly job training and adult basic education. The middle and upper socioeconomic classes will seek opportunities that lead to achievement and self-actualization. Enrollment data supports this assertion. Adults with a high school education or less are primarily interested in job-related training as opposed to adults with twelve years plus education who are more apt to enroll in college courses and programs designed toward self-awareness and personal development (Carp, Peterson, & Roelfs, 1974; Cross, 1979; Johnstone & Rivera, 1965).

Miller explains the usefulness of Maslow's needs hierarchy in understanding research showing a relationship between educational interests, age and life stage. Early stages of adulthood are concerned with satisfaction of needs low in the hierarchy. Younger people are more interested than older people in achieving economic security and establishing a social network for belonging needs (Miller, 1967, p. 7). Older people, having met those needs, are free to devote energy to achieving status, enhancing achievement, and working toward self-realization (Cross, 1981).

From Lewin, Miller drew the idea that both negative and positive forces act upon the individual. The direction and sum total of these forces determine an adult's motivation to participate in adult learning activities. Miller predicted that strong personal needs and strong social forces would yield high participation; strong personal

needs and low social forces would result in low participation (with individual exceptions); weak personal needs and strong social forces will lead to high initial participation followed by high drop out; and finally, if personal and social forces conflict "the participation level will depend on the strength of the social force in the given situation" (Miller, 1967, p.4).

Using Lewin's concept of positive and negative forces forming a motivational force field, Miller presents a model of motivation relating to socioeconomic status. "The lower-middle class value system, with its emphasis on mobility and status and a concentration on satisfying belonging needs within the nuclear family rather than in the adult peer groups, makes it a prime consumer of continuing education" (Miller, 1967, p.7).

Boshier, like Miller, believes that motivation for learning is a function of the interaction between internal psychological factors and external environmental factors. It is the individual's perception and interpretation of environmental factors that is most salient. "Both adult education participation and dropout can be understood to occur as a function of the magnitude of the discrepancy between the participant's self-concept and key aspects (largely people) in the educational environment. Non-participants manifest self-institution incongruence and do not enroll" (Boshier, 1973, p.256). Incongruencies between self and ideal self, self and other students, self and teacher, self and institutional environment are additive, the greater the sum, the greater the likelihood of participation or dropout (Boshier, 1973). Students with high incongruence scores are significantly more likely to drop out than others with low incongruence scores. Low participation rate of adults from lower socioeconomic classes in higher education programs of continuing education is due to the lack of congruence between their lives and the essentially middle-

class environment of higher education. This is very similar to earlier findings wherein socioeconomic class was found to effect the participation rate of adult learners in higher education (Miller, 1967; Carp, Peterson, & Roelfs, 1974; Cross, 1979; Johnstone & Rivera, 1965).

Boshier's model is based on the assumption that participation and persistence are determined by how people feel about themselves and the match between the self and the educational environment. Learners who have low congruence between perceived self and ideal self tend to project this incongruity onto their environment. Vincent Tinto's model of institutional fit (Tinto, 1987) often used to explain participation and persistence in higher education does not completely explain the reasons for a lack of fit. Many adult learners enroll in institutions with internal incongruencies that they project onto the institution. Boshier suggests that the proper matching of adults to educational environments is important, however, people with a high degree of dissatisfaction with themselves are likely to project this dissatisfaction onto the environment and drop out of almost any kind of environment; they are drop-out prone (Boshier, 1973). Self-esteem, therefore, is seen as a critical factor in educational participation and persistence. The non-traditional student quite often lacks self-esteem in the unfamiliar setting of higher education. Encouragement, counseling and close mentoring is necessary to help the non-traditional student identify and overcome issues relating to low self-esteem.

Rubenson's Expectancy-Valence Model (1977) draws from psychological motivation theories, incorporating both individual and environmental aspects in explaining participation. Rubenson adapted a work paradigm to education, asserting that education, like work is an achievement-oriented activity. The individual is the center of this model and the decision to participate is a combination of positive and negative forces

within the individual and the environment. The expectancy-valence model is based on the belief that human behavior is the result of an interaction between the individual and the environment. This interaction is a determinant of the strength of the individual's motivation. Levels of participation in Rubenson's model are related to the degree to which the learner expects to be successful (expectancy), and the value (valence) the learner puts upon this success. The expectancy part of Rubenson's formula consists of (1) the individual's expectation of personal success in the educational activity and (2) the expectation that being successful will have positive consequences. Valence, the other part of the formula, is concerned with affect and can be positive, indifferent, or negative. Its strength depends upon the anticipated consequences of participation (Rubenson, 1977).

The individual is the center of this model, major attention being given to how the learner perceives the environment and what the expected gain is. It is important to note that the environment or external circumstances are of importance only in so far as how the individual perceives them. The perception of a barrier is the salient element and may or may not be reality. Any research into barriers therefore, should include the qualifying term, perceived barriers. In addition, the role of reference group is also very strong. Perceptions are developed through socialization. "As a consequence of socialization, . . . adult education has become a part of the value system of some groups but not of others" (Long, 1983, p.209).

Allen Tough, the leader in research and writing on self-directed learning, has attempted to measure multiple components of motivation. In his investigation of adult learning projects Tough and associates found that 75% of adults were motivated to participate in a learning project based upon the anticipated use of the learned skill or

knowledge. Tough's (1979) model is built on the belief that the anticipated benefits to be derived from learning are present in the person's conscious mind and constitute a "significant portion of the person's total motivation for learning" (p.7). The learner's conscious anticipation of the benefits to be derived from the learning is more important than subconscious or environmental forces. The most common motivation for a learning project, according to Tough, is some anticipated use or application of the knowledge or skill. The anticipation of benefit may occur in one or more of five stages of an activity: (1) during engagement, (2) while retaining the knowledge or skill, (3) while making application of the new learning, (4) while gaining a material reward, or (5) while gaining a symbolic reward. Rewards or benefits are classified into pleasure, self-esteem, or others. Result of Tough's research demonstrated that the stage at which benefits were most likely to be anticipated was in the application of the knowledge or skill. Adults expect to see benefits from their new learning in its application to their life. Adults enrolled in postsecondary institutions need help making application of the curriculum to their life. In addition, the curriculum in higher education needs to be continually evolving to reflect the needs of the society.

Cross's Chain of Response (COR) Model has its origin in the theoretical work of Miller, Rubenson, Boshier and Tough (Cross, 1981, p.124). The focus in Cross's model is the individual and their personal evaluation of themselves and the learning. Participation is a result of this evaluation and can be traced along a continuum or chain of responses made by the learner. The strength of the learner's motivation for learning is additive and directly dependent upon the salient factors of personal perception of self and environment in relationship to expected outcome and reward.

Darkenwald and colleagues have developed a psychosocial model of participation that looks at both the individual and the social environment in which the learning occurs. Similar to Darkenwald's model the ISSTAL model, developed by Cookson (1986) focuses on the importance of the social context of learning as a contributor to participation. Cookson (1986) explains that social participation tends to fit into a lifelong pattern: "Accordingly, relative to others within the same cohort, people who exhibit higher levels of participation in adult education in their thirties may be expected to display similarly higher levels in their forties, fifties, and sixties" (p.132). This is not a surprising finding, as previous studies have indicated that degree or amount of prior education is a determining factor in continuing education.

There are unique features to each of the models mentioned. Each attempts to explain participation through the interaction of the individual and the environment. With the exception of Cross's COR model, each defines participation in institutionally sponsored learning activities. The value of the models in predicting participation is yet to be determined. Any discussion of these models points to the complexity of the topic of barriers and participation. An individual's decision "not to participate in organized adult education is typically due to the combined or synergistic effects of multiple deterrents, rather than just one or two in isolation" (Darkenwald & Valentine, 1985, p.187). It is important not to focus on just one isolated deterrent when attempting to explain participation. With the exception of time, which is a critical factor cited by many respondents, the investigator is cautioned against drawing unwarranted conclusions based upon single deterrents or even single reference groups. Cultural and gender differences account for degrees of difference in the participation of some groups. Women and young people tend to cite situational barriers more frequently than older learners. However,

even within this context it is necessary to further explore the content of the barrier in order to appropriately respond to the learner.

Participation research and investigations into barriers to participation are rich and numerous. The underlying assumption in each is guided either by a psychological perspective, sociological perspective or a combination of the two. Some investigators prefer the word deterrent to barrier, the latter connotating an absolute blockage, "a static and insurmountable obstacle that prevents an otherwise willing adult from participating in adult education" (Valentine & Darkenwald, 1990, p.30). Deterrents, on the other hand, are interpreted as being more fluid, less conclusive and permanent. Whether one chooses to discuss non-participation as the consequence of barriers or deterrents, postsecondary institutions must examine the needs of the non-traditional student from both a psychological and sociological perspective. The recruitment and retention of the non-traditional learner to higher education will involve a careful examination of the institution's assumptions about adults as learners and the learning environment. Schon (1987) challenges professionals to become reflective practitioners by raising their awareness of the operating forces they apply to their professional practice. Faculty, administrators and support staffs at postsecondary institutions need to reflect on those practices that may be perpetuating barriers to participation for certain groups of learners. Curriculum, course content, method of delivery and assessment are all issues directly related to the retention of the non-traditional student. An understanding of the barriers/deterrents faced by this population will help with the recruitment and retention of the non-traditional student in postsecondary institutions.

Adult Learning

The principles of adult learning have direct application to the retention of the non-traditional student in higher education. Adults learn best when they have the opportunity to be active participants in the learning process.

Active participation in learning improves the retention of information (Darkenwald and Merriam 1982). Through this act of participation the learner is able to integrate information with prior experience making it more meaningful, accessible, and applicable at a later time. Active participation and integration of learning is facilitated by encouraging the adult learner to explore their needs and interests, set goals, choose strategies for learning and participate in assessment of learning.

Adult educators facilitate this process of participation by first allowing the adult learner to explore their needs and interests. This occurs prior to instruction and is best facilitated on the first day of class. Learners are asked to identify, if possible, their reasons for initiating the learning activity, their interests, prior experiences and their goals for the learning. Adult learners experience a sense of empowerment through this immediate attention to their needs and prior experience. When given the opportunity to share, some adult learners are willing and capable of stating their own learning needs, goals and areas of interest. Others may need help with this initial exploration process. Perceived needs may not be readily verbalized for some while others are very unsure of why they have decided to participate in the learning task. This first step of empowerment may be new and the adult learner may need help overcoming a reluctance to verbalize needs and interests. Early attempts at defining adult learning include this principle of goal setting as central to the facilitation of learning for the adult (Knox, 1977; Smith,

1982). Knowles, in an outlined five-step model of self-directed learning, identifies diagnosing need and formulating goals as the first steps in facilitating self-direction (Knowles, 1975, p.18).

Following a needs assessment the next step in active participation involves an awareness on the part of the adult educator and the learner to the presence of different learning styles and strategies for learning. Adults have accumulated many life experiences which result in distinct preferences for modes of learning and learning environments (Smith, 1982). In addition to a variety of learning styles, adults employ different strategies for learning new information. "While learning styles are cognitive, affective, and physiological traits that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment" (Keefe, 1982, p.44), learning strategies are the techniques or skills that an individual elects to use in order to accomplish a specific goal or set of learning tasks. Learning strategies differ from learning styles in that they are techniques rather than stable traits and they are selected for a specific task (Conti and Fellenz, 1991). Such strategies vary by individual and by learning objective. In many instances they are overlooked because they are so familiar and customary to the learner. In other cases the learning task requires a careful analysis of the appropriate learning strategy needed to complete the task. Adult educators who facilitate this analysis provide additional ways for the adult learner to become engaged in their own learning. Participation in learning involves the opportunity to make choices about how to learn new information.

And finally, adult learning is facilitated by a collaborative process of assessment, feedforward and evaluation. Adults who have the opportunity to participate in ongoing evaluation of their learning become facilitators of future learning. Adults learn best

when they feel responsible for what, why and how they learn (Knox, 1977; Brundage and Macheracher, 1980; Darkenwald and Merriam, 1982; Seaman and Fellenz, 1989; Merriam and Caffarella, 1991).

Adults are encouraged to play an active part in their learning through the encouragement and support of sensitive adult educators. Facilitators of adult learning must be willing to share in the process of learning, helping the adult learners to work their way through the learning process from a procedural as well as a content point of view. The application of this principle to post-secondary institutions and in particular to the retention of non-traditional freshmen students requires faculty to re-examine the ways in which course syllabi are created and how the delivery and synthesis of information and content occurs. Traditionally, the first day of class is spent with the faculty member dispensing information about course requirements, syllabus, etc. To better involve the adult learner, the first day of class could be spent in the facilitation of an informal needs or interest inventory; a quick pretest of course related competencies; an informal group discussion or the scheduling of individual interviews with students as a means of discussing needs and goals.

From the information gathered the faculty person then is able to create a syllabus designed to meet the needs of both the students and the curriculum. An examination of strategies needed for learning and a discussion of learning styles would allow the adult learner and the faculty member to collaboratively develop a method of instruction. Assessment techniques and rubrics for evaluation are created by the learner and the adult educator working together.

The faculty member does not surrender control of the classroom, nor the curriculum. On the contrary, the classroom and the curriculum are enhanced by the active participation of the adult learner in the planning and facilitation of the learning.

The adult learner presents some major challenges for institutions of higher learning whose programs have been geared to traditional-age student populations. Studies of adult students enrolled in post-secondary institutions have identified some specific needs of this population: separate registration, advising and orientation programs; greater availability to parking; more evening and weekend course offerings; special assistance with financial aid and housing; and better preparation of faculty and staff to meet the needs of adult learners (Richter-Antion, 1986; Thon, 1984).

Services that adult learners considered most important, but which were least often available to them included health services, publications for adults, and qualified staff to work with nontraditional students. Full participation by the adult learner in the learning task will necessitate the careful examination of academic program requirements and of existing support services and programs for nontraditional students.

Adults bring a variety of prior experiences to the learning task and seek to integrate new information with their prior experience. A distinct characteristic of adult learners is the variety and abundance of prior experience they bring to the learning task, and their desire to integrate new learning with this prior experience (Benshoff, 1991). It is the richness of the adult learners' prior experiences that provides a foundation for new learning. For many adult learners their prior experience is what helps them assimilate and accommodate new information (Brundage and Mackeracher, 1980). The adult educator who recognizes the value of the adult learners' prior experiences in facilitating learning has gained insight into the nature of adult learning.

The evolving nature of adulthood and specific life experiences and situations play an instrumental part in defining how learning occurs (Kidd, 1973; Knox, 1977). Knowles, in his theory of andragogy, draws heavily from studies of the characteristics of adult learners. Two of the main principles of andragogy posit prior experience as being instrumental in the learning process. The adult learners' readiness to learn is closely associated with their prior experience, life status and developmental tasks of their social role (Knowles, 1980; p.43).

Prior experience, though most often useful to future learning tasks, also has the potential to inhibit and deter learning (Knox, 1977). Negative past academic experiences may cause the adult learner to anticipate future problems with learning. The process of learning may be perceived as difficult, unpleasant or even frightening. Lack of confidence in one's ability based upon negative prior experience and the belief that prior poor performance will continue are examples of negative dispositional barriers that may arise from prior experience (Cross, 1981). In addition, social forces within the environment and the life experience of the adult may perpetuate dispositional barriers. Pressures from family members, peer groups and the culture can be strong influences on one's experience (Darkenwald & Merriam, 1982).

The implications of this principle for post-secondary institutions are numerous. The acknowledgment of adult learners as persons who enroll in the institution bringing a variety of prior experiences is foremost. The validation of the adult learner as having had experiences that may contribute in both positive and negative ways to their ability to learn empowers the adult learner. This awareness of the possible inhibiting nature of prior experiences provides the adult educator with insight and opportunities for

discussion with the learner about the development of strategies to ameliorate the negative perceptions.

While most nontraditional students bring a variety of prior experience to the learning task some are unaware of the importance of these experiences to their learning or discount their background and its application to the academic arena. Adults experience both anxiety and ambivalence in their orientation to learning (Smith, 1982). Many doubt their ability to succeed and require continuing encouragement. Anxiety is a big problem and the fears of competing with younger students and losing self-esteem are reoccurring themes in the literature on nontraditional students in postsecondary institutions (Knowles, 1980; Krager, Wrenn & Hirt, 1990; Lowenthal, 1980).

A developmental model of advising that allows the faculty advisor and the adult learner to discuss prior experience and the implication for future learning is one way of addressing this issue of previous experience. Faculty who are able to help the adult learner identify methods or strategies to integrate new learning with life experience provide the adult with tools for future integration. Developmental advising is a retention tool for all students, but is especially beneficial to the nontraditional student because it recognizes the need for collaborative and mutual respect between the student and the faculty member. Rather than a prescriptive model of advising where the faculty advisor tells the student what to do, developmental advising recognizes the strengths of the student and engages them in the advising process.

Adults learn best when information is meaningful, relevant and readily applicable to their life situation. Theories of adult learning, regardless of their philosophical orientation all contain an element of this principle. Knowles speaks of meaningfulness as one of the tenants of andragogy (Knowles, 1980, p.43). Cross, in her characteristics of

adult learners describes the differences between children and adults on two classes of variables: personal characteristics and situational characteristics. Personal characteristics include the nature of adults to seek relevance and immediate application of learning (Cross, 1981, p.234). McClusky (1970) in a theory of learning based on adult life tasks and situations describes learning in terms of margin in life. Margin is the energy left over when one subtracts the demands of life from the power of life. Immediate application of learning increases the margin available for future learning (McClusky, 1970, p.84). Knox's (1980) proficiency theory talks about the "close correspondence between learning and action beyond the educational program" (p.384). Mezirow's theory of adult learning based upon critical reflection, rational discourse and action is central to this concept of meaningfulness and relevance of learning. Adult education is the process of facilitating an engagement in critical reflection that leads the adult learner to meaningful application of learning. This involves the adult learner learning to make their own meanings, purposes and values rather than assimilating those of others (Mezirow, 1981).

In his theory of education Freire sets learning within the context of social change. For Freire (1970b) the ultimate goal of all learning is liberation, or praxis, "the action and reflection of men upon their world in order to transform it" (p. 66).

The adult learners' need for relevance and immediacy of application of learning can be traced to their unique orientation to learning. In the presence of multiple roles and responsibilities held by the adult learner competing demands for limited resources of time, energy and finances make many adult learners problem centered in their orientation to learning. The adult learners' motivation for learning is often directly related to their orientation for participation. Education comes at a high price for many adult learners

and they don't want to waste time or money. They expect value for time and money and possess a strong consumer orientation toward education (Adams, 1989; Benshoff, 1991).

The adult learner is one whose learning activities are secondary to other social or economic roles many of them enrolling in school while having multiple out of school commitments (Lowenthal, 1980; Young, 1984). They are unwilling to continue to participate in a course or program of study if they perceive they are not making progress toward their goal or if the material is irrelevant to them (Ulmer, 1980). They expect meaningfulness of learning and activities and generally prefer more active approaches to learning new material (Knowles, 1980; Sakata, 1984).

The implication this principle has on post-secondary institutions can be seen in both program development and delivery. Changing population demographics, economics and advanced technology have had a dramatic effect upon the scope and design of adult education. The amount of information in the world doubles every seven years (Apps, 1988, p.23). The need for continuing education has brought many nontraditional students to the doors of higher education. The adult learners' demands for meaningful learning and application of learning will cause faculty and administration to re-examine current practices of course delivery and content orientation. Courses and information will need to focus on real world problems and the application of learning. Content will need to remain fluid to the infusion of new information and new learners. Debate and discussion will replace lectures and overheads. Faculty will become facilitators of learning, engaging learners in meaningful experiences. Learners will become valuable resources for one another. The adult educator will be the facilitator of this process. Networking and group collaboration will become the methods of exchanging information. Adult learners will be taught how to listen with respect to themselves and to one another.

Transformative, emancipatory learning will become as important as course content. Praxis will be the benchmark of all courses, the application of theory and practice in meaningful and relevant ways.

Adults are intrinsically motivated and have a deep need to be self-directing. Self directed learning is a form of study in which learners have the primary responsibility for planning, carrying out and evaluating their own learning experiences. Self directed learning is not a new concept. Its actual practice can be traced to early Greek philosophers. Cyril Houle, in Patterns of Learning (Houle, 1984), notes that self-directed study has always been the paramount means of learning, but is constantly being rediscovered. Houle's landmark study, *The Inquiring Mind* (Houle, 1961) fostered the resurgence of interest in self-directed learning. In his own attempt at defining self-directed learning, Allen Tough provided the first comprehensive description of self-directed learning as a form of study. In a study of the learning projects of sixty-six adults Tough found that 70% of all learning projects were planned and carried out by learners in a self-directed manner (Tough, 1978, p.250).

In a look at why learners preferred self-directed learning over enrolling in a formal program of study, Penland (1979) found that the reasons the respondents gave for planning their own learning placed the emphasis on having individual control over their learning, both in terms of their personal learning style and the learning process itself. Learners wanted the freedom to set their own learning pace and structure as well as the flexibility to change learning strategies as needed.

The work of Houle, Tough and Knowles suggest that the organizational process that occurs in self-directed learning is linear. Recent investigations offer an alternative explanation to the organizational structure of self-directed learning efforts. Spear and

Mocker suggest that self directed learners do not all preplan their learning, but instead select from limited alternatives occurring in their environment. The process includes: (1) a triggering event stemming from a change in life circumstances, (2) a change in circumstances provides an opportunity for learning, (3) the structure, method, resources and conditions for learning are directed by circumstances, and (4) learning sequences progress as the circumstances created in one episode become the circumstances for the next logical step (Spear and Mocker, 1984).

A key aspect in self-directed learning is the ability to locate available resources. The adult educator functions as a resource person in helping the adult learner identify and access resources needed for learning. This concept of educator is similar to a 'broker' of information. Directing and connecting learners with available resources for learning. The implication for adult education is that educators must be oriented to available resources and have a clear understanding of the nature of the adult learner.

Not all adult learners bring the same degree of self-directedness to any given learning situation. Three major contributors to self-direction are: models from home and school, a sense of personal identity or worth, and a superior perception of reality (Fellenz, 1982, p.80). At times, and in certain situations, an otherwise self-directed, autonomous adult learner may exhibit temporary periods of dependency, requiring more rather than less direction from the adult educator. This is usually a temporary state and when provided with encouragement and scaffolding the adult learner will continue on a self-directing path, for it is the nature of most adults to be self-directing.

Whether self-directed learning occurs by design or by chance, the motivation for choosing appears to be the learner's perceived feeling of increased control. The implication for formal institutions of higher education is simple: apply the principles of

self-directed learning to the classroom setting. Empower the learner by validating them as initiators of their own learning. Recognize their unique experiences and abilities. Participate in mutual goal setting. Provide opportunities for practice and reflection on learning.

Self-directed learning and formal education are not mutually exclusive concepts. Self-directed learning may also take place in a traditional formal setting inside institutionally based learning programs (Merriam and Caffarella, 1991, p.41). Knowles has outlined a 5-step model for self-directed learning that is adaptable for classroom use: diagnose needs, formulate goals, identify resources, choose from alternatives, evaluate progress (Knowles, 1980). Workshops and training that promote strategies for facilitating self-directed learning in the classroom could become part of faculty development programs.

A desire for control, freedom and flexibility appear to be the major motivators for the initiation of self-directed learning. Control, freedom and flexibility are also the benchmarks of academic freedom that is held so dear to the heart of every academician. The acknowledgment of these as necessary to effective learning should not be an obstacle in the implementation of self-directed learning in the college classroom.

Adults learn best in a non-threatening collaborative environment of mutual respect that recognizes the importance of individual empowerment. The educational environment has a great deal of impact on the adult learner. In introducing the concept of learning environment, Knowles (1970) suggested that activities conducted prior to and during the first session could "greatly affect it", including promotional materials and announcements; activities designed to assess learner needs prior to instruction; physical arrangements; and the opening class; including greeting, learning activity overview,

introductions, and treatment by the instructor (p.270). More recently, adult educators are recognizing that factors in the learning environment related to psychological, social and cultural conditions also exert powerful influence on the growth and development of learners (Hiemstra, 1991).

Current discussions on learning environments have broadened to include the need to confront issues of prejudice (Hayes and Colin, 1994), oppression and social justice (Tisdell, 1993b; Shore et al. 1993). This broader understanding of factors that affect learning is leading adult educators to consider how they can create environments that address "issues of power that are inherent in cultural diversity, whether that diversity is based on nationality, race, class, gender, sexual orientation, disability, or some other factor" (Merriam 1993, p.58).

Education is a vehicle for empowerment. The empowerment of the adult learner can best occur within an environment of mutual inclusivity that allows for debate and disagreement without fear of oppression or repercussion. By establishing a learning environment that is non-threatening, guided by principles of collaboration and mutual respect, the adult educator provides the arena in which adults may make choices and assume responsibility for their learning. The goal of learning is choice, the freedom, and capacity "to choose for oneself from a set of possible alternatives" (Day, 1988, p.119). According to Day, developing a person's capacity to know, weigh, choose, and act involves being aware that:

1. We are the decision-making beings and are ultimately responsible for the decisions we make.

2. Our participation in a learning activity cannot be viewed in isolation from the wholeness of our lives, that is, what we learn affects what we feel and what we do.
3. The idea of increased choices and options may indeed serve as a powerful motivator for participation in learning activities.
4. The results of our leaning experiences may as likely lead to discontent as to a state of well-being.
5. Learning produces consequences.

The adult educator has little control over the change of events that are set in place by learning. The role of the educator in the empowerment process is to explore with learners the potential consequences of various courses of action. Empowerment is not a decision made by the educator, but rather an action that occurs as the result of learning.

The retention of non-traditional students at postsecondary institutions is enhanced when students are encouraged to participate in their own learning; when they are validated for their prior experiences; when information is meaningful and relevant; when the principles of self directed-learning are enhanced and developed; and when students are able to weigh, choose, and act in ways that are self-enhancing. The facilitation of these principles enables the nontraditional student in postsecondary institutions to integrate, access, and apply information to their own lives which in turn empowers them to transform and change their own history.

CHAPTER 3

METHOD

Research Design

The research design used in this study was descriptive. Descriptive research is that which "involves collecting data in order to test hypotheses or answer questions concerning the current status of the subject or the study" (Gay, 1996, p. 249). Both quantitative and qualitative data were collected. Quantitative research is generally used in education today (Baker, 1995, p. 239).

This traditional approach to research:

Requires reducing a phenomenon to attributes that can be controlled and clearly defined . . . [While] qualitative research . . . is supposed to inform us descriptively and in depth, providing rich, detailed information in the language of the phenomena being studied. The information is to be used constructively . . . as a foundation to formulate ideas, develop hypotheses, and generate responses based on a better understanding of the phenomena in question. (p. 239)

The research goals of the study were to (a) investigate the perceived barriers to education faced by non-traditional freshmen students enrolled in a postsecondary institution, (b) determine if there is a relationship between demographic factors and types of perceived barriers, and (c) determine if it is possible to identify a typology of learner for whom certain barriers are problematic.

Typically, descriptive research is concerned with demographics, conditions, opinions, and attitudes of the surveyed population (Gay, 1996). One method of

collection is by questionnaires that are used as a self-reporting instrument. This method was chosen in order to elicit from each responding non-traditional freshman student a profile of perceived barriers to participation in education at MSU/Northern.

One of the factors affecting usefulness in any research endeavor is the appropriateness of the method used to gather the crucial information (Patton, 1983). The questionnaire used in this investigation has been used in multiple settings to examine barriers to participation in education. In addition, the use of focus groups and interviews to clarify and expand on the data gathered has been demonstrated as a reliable practice in qualitative research (Guba, 1978, p.24).

In the first phase of the investigation, questionnaires were sent to non-traditional freshmen students enrolled at Montana State University-Northern in the fall semester of 1997. Data from these questionnaires were included in both discriminant and cluster statistical analyses. In the second phase, focus groups and individual interviews were conducted to discuss the data findings, to further describe the findings, and to brainstorm possible procedures and actions that might alleviate barriers for non-traditional students at MSU/Northern.

Context

Descriptive studies take place within a specific context, and their purpose is to describe elements within this setting. To do so, "the researcher must be sensitive to the context and all the variables within it including the physical setting, the people, the overt and covert agendas, the nonverbal behavior. One also needs to be sensitive to the information being gathered" (Merriam, 1988, p. 38). In research which involves the collection of qualitative data, "one of the cardinal principles of qualitative methods is the

importance of background and context to the processes of understanding and interpreting data" (Patten, 1983, p.9).

Montana State University-Northern is part of the Montana State University system. As one of four campuses in the state, MSU/Northern is located in Havre, Montana. The city of Havre is surrounded by the diverse geography of the Milk River, golden wheat fields, and the rising peaks of the Bear Paws Mountains. Located in the rolling plains of north central Montana, Havre began over 100 years ago as the first trains forged across the Great Plains. Havre quickly became the transportation hub of the area, providing goods and supplies to the area trappers, miners and military stationed at Fort Assiniboine, six miles southwest of town. Prior to 1910, the area was devoted primarily to raising sheep, cattle and horses. Ranches soon became lesser in numbers, however, as farms started to produce some of the world's greatest spring and winter wheats.

Although agriculture is the undisputed financial mainstay in the area, the economy is diversified with farming, ranching, hospital and health services, education, professional and retail business, manufacturing, and railroad industries (Havre Chamber of Commerce, 1996). Havre is the focal point of commercial activity in the area. As the largest city on the Hi-Line (the term used for the east to west highway across the state), Havre serves as a wholesale distribution and retail center for communities within 150 miles.

Montana State University-Northern serves a large part of the state from North Dakota to Idaho as well as three Canadian provinces. The main campus located on approximately 105 acres within the city of Havre, functions as a regional, multi-purpose educational center. Place-bound students throughout the state of Montana are provided

educational opportunities through Northern's extended campus in Great Falls and course offerings through telecommunications.

The total enrollment at MSU/Northern for the fall semester of 1997 was 1449; 84% of these students live off campus. Many commute from other towns along the Hi-Line. The college consists of seven academic departments, including the Department of Agriculture and Mechanical Technology, the Department of Business, the Department of Education, the Department of Humanities and Social Sciences, the Department of Industrial and Engineering Technology and Engineering Technology, the Department of Nursing, and the Department of Science and Math. Students may obtain a master's degree, bachelor's degree, associate's degree, or receive certification in a program of study.

The college's location in the remote north central part of the state coupled with the variety of degree programs offered have given rise to a student body profile that is varied in both interest and age. There is a strong emphasis on agriculture, mechanical technology, and industrial engineering along with the traditional courses of study. The technical side of the institution draws a number of older students interested in retraining for a new career or vocation. Teacher Education, Nursing, and Business are three of the largest departments at MSU/Northern. Many of the students who enroll in courses and programs that are offered in these departments are also non-traditional students.

In 1990 the average age of MSU/Northern students was 29 years. At that time recruitment strategies were adopted to increase the number of traditional age new students, students between the ages of 18 and 21. In 1994 the average age was 21.8 years. Recently the average age of new students at MSU/Northern has begun to rise. Fall

term 1996 the average was 23.4 years. This increase reflects the overall change in population demographics across the nation.

Sample

Non-traditional freshman students enrolled in the fall semester of 1997 were the non-traditional as being any student with three or more years between high school graduation and college enrollment, this yielded a population of 238 students. These names were obtained from the registrar's office. Questionnaires were mailed to each of these students with a self-addressed postage paid return envelope. Fifty-five students returned completed questionnaires. This represented 23.1% of the population. In descriptive research 10% to 20% of the population should be sampled (Gay, 1990, p. 124). This sample exceeded the basic size needed by only a small margin.

This descriptive research sought to elicit a comprehensive picture of non-traditional students at MSU/Northern. Thirty-eight of the respondents were female. Fifty-five percent of the population of non-traditional freshmen during the fall semester of 1997 was female. Twenty-six of the respondents were over the age of 35; the mean age for the sample was 35.07 years. Eighty-six percent of the respondents were Caucasian. This is somewhat higher than the percentage of Caucasians in the population of non-traditional freshmen, which was 75%. Sixty-five percent were married with the remaining 35% either single, widowed or divorced. Only 37% of the total group of non-traditional freshmen during the fall of 1997 reported being married, thus the sample contained a high percentage of married persons. The mean number of children was 2.8 with a range from 0 to 8 children. The majority of respondents reported an annual income of between \$15,000 and \$24,999. When asked how many hours per week they

were employed, 23.6% reported no employment, 21.8% reported working 1-19 hours a week, 29.1% reported working 20-39 hours a week, and 25.5% indicated working over 40 hours per week. When asked about their college enrollment status, 47.3% of the respondents reported full-time enrollment while 52.7% were enrolled part-time. Fifty-two percent of the students were enrolled in a bachelor's degree program. This was slightly lower than the reported 66% in the population of non-traditional freshmen. Ninety-four percent of the respondents lived off campus.

Instrument

In order to examine the perceived barriers of non-traditional students, this study utilized a questionnaire based on a portion of "Learning Interests and Experiences of Adults" used by Carp, Peterson, and Roelfs in their 1972 study. In the original questionnaire, respondents were provided with a list of 24 previously identified barriers to adult participation and asked to circle all of those that applied to them. Later, Patricia Cross conceptually categorized these 24 items into three categories of barriers: institutional, dispositional, and situational barriers. In a recent study on barriers, Byrd added a Likert scale to the original instrument used by Carp, Peterson, and Roelfs. Respondents were given the 24 items and asked to indicate the degree of concern each item held for them. A response of one indicated no concern and a five indicating overwhelming concern. Byrd also used Cross's categorization of the 24 items as situational, institutional, or dispositional barriers.

The current questionnaire is a modification of the Carp, Peterson, and Roelf instrument (Appendix A). Similar to the Byrd investigation, respondents were asked to indicate on a Likert scale whether an item was a concern. Items that were of no concern

were scored as one, items of minor concern a two, items of average concern a three, items of major concern a four, and those items of overwhelming concern were scored as a five. Each of the items on the questionnaire was coded as falling into one of Cross's three categories of barriers: Situational, Institutional, or Dispositional.

The validity of an instrument is extremely important. Validity is concerned with what the instrument actually measures (Kerlinger, 1973, p. 457). Establishing validity for any questionnaire is essential to the credibility of the instrument, and because it involves several steps, "the validation of a test or questionnaire is a long process rather than a single event" (Tyler & Walsh, 1979, p. 29). An issue of concern for this investigation was the validity of the original questionnaire and the further conceptualization of the original 24 items into three distinct categories of barriers of situational, institutional, and dispositional.

Two types of validity that are of concern for questionnaires are construct validity and content validity. Construct validity assesses the underlying theory of the questionnaire. It is the extent to which the questionnaire can be shown to measure hypothetical constructs that explain some aspect of human behavior (Borg & Gall, 1983, p. 280; Van Dalen, 1979, p. 137). The process of establishing construct validity for this questionnaire consisted of a literature review and the examination of the prior use of the questionnaire in multiple settings. The instrument addresses construct validity by being based on the theoretical concepts of barriers as addressed in the literature by numerous researchers and therefore has a solid theory base.

Content validity refers to the sampling adequacy of the content of the questionnaire (Kerlinger, 1973, p. 458) and can be determined by expert judgment (Gay, 1996, p. 140). The items within the current questionnaire were those used in the original

Carp, Peterson, and Roelfs questionnaire. The current questionnaire contains 30 items with no substantive changes made to the content of the original questionnaire. Six of the original items were re-worded or split into two separate items in order to bring further clarity to the item. Item number one, "Cost, including books, learning materials, child care, transportation, as well as tuition," was changed to read "Cost for such things as books, learning materials, child care, transportation, or tuition". Item number six, "Don't know what I'd like to learn or what it would lead to," was changed to "Not sure what courses I'd like to take". Item number eleven, "No information about places or people offering what I want," was split into two separate items: "Not enough information about what courses are available" and "Not enough information about who to contact". Item number fifteen, "Friends and family don't like the idea," was split into two separate items: "My family doesn't like the idea" and "No encouragement from my friends". Item number twenty. "Low grades in the past, not confident of my ability," was split into two separate items: "Low grades in the past" and "Lack of self confidence". Item number twenty-four, "Tired of going to school, tired of classrooms," was changed to "Tired of going to school". Three additional items were added: "Don't know how to use computers", "Financial aid applications are confusing", and "Afraid I'll fail". Thus, content validity, as established through use and expert opinion, was not affected by any of these changes.

Cross's categorization of the 24 items from the Carp, Peterson, and Roelfs questionnaires into three distinct barriers is arbitrary. However, it is supported in the literature by other researchers who have used the three-barrier typology (Brookfield, 1986; Charner, 1980; Charner & Fraser, 1986; Cross & McCartan, 1984; Thiel, 1984).

Cross notes in her defense of these categories the obvious arbitrary nature of placement and also the tendency for some of the items to overlap categories (Cross, 1981).

An exploratory factor analysis was conducted with the data from the sample for this study to explore the factor structure of the instrument. The factor analysis revealed that the instrument consisted of four factors. Therefore, the data were analyzed in terms of both the original three-factor solution as proposed by Cross and by the four-factor solution indicated by the factor analysis. Subscores were analyzed using both the three-factor and the four-factor solution. Care must be taken in drawing any conclusions from this analysis as the sample size is below the 10:1 ratio called for in multivariate statistics, however the analysis was done to further explore the makeup of the current group under investigation.

The reliability of the instrument had not been noted in the literature, and therefore a Cronbach alpha was calculated to check the internal consistency of the instrument on both the three-factor and the four-factor scales. In the three-factor solution the reliability coefficient for the Situational scale was .68. This is slightly lower than the .7 standard usually associated with instrument reliability (Gay, 1996, p. 147). The Institutional scale had a reliability coefficient of .79, and the Dispositional scale was .84. These scores indicate that the scales are generally reliable for the three-factor solution.

In the four-factor solution, in which the fourth scale is a combination of items from Cross's dispositional and situational scales, each of the four scales were found to be reliable. The Situational scale had a reliability coefficient of .67. The Institutional scale had a reliability coefficient of .83, and the Dispositional scale a reliability coefficient of .88. The fourth scale, Dispositional/Situational, had a reliability coefficient of .68. The slightly lower reliability coefficients for the Situational scale and the

Situational/Dispositional scale must be considered when using this instrument. Although the instrument demonstrates reliability for the three- factor solution and the four-factor solution, the number of cases being investigated is low, and no conclusions about the instrument's overall reliability should be drawn from this investigation. Further reliability studies would be necessary.

The use of these statistical tools served as one way to make sense out of the patterns in the data. The purpose of this investigation was to better understand the group being studied and to generate some suggestions for the recruitment and retention of non-traditional freshmen at MSU/Northern. Any further use of the data would require establishing both validity and reliability for the instrument.

Procedure

The questionnaire was mailed to the entire population of non-traditional freshmen students enrolled at Montana State University-Northern fall semester 1997. A return addressed, stamped envelope was provided.

After the returns were entered into a data management program for statistical analysis, the numerical results were analyzed by simple frequency counts. Once the responses were reported, the second phase of the investigation began.

An additional method utilized in describing a population is the use of interviews and focus groups. Interviews may be used when the investigator wants to describe a phenomenon that has not been previously investigated. A way to interview a small group of individuals who have similar characteristics is a focus group. Focus groups are

extremely useful in developing interpretation of results of an earlier study (Moran, 1988, p. 11).

The focus group met on the campus of MSU/Northern. Participation in the focus group was voluntary. Ten students participated in the focus group interview. Participants were asked to clarify responses on the Carp, Peterson, and Roelfs questionnaire. The focus group was given the survey results as a starting point for discussion. The purpose was to (a) clarify quantitative data, (b) enrich quantitative data with qualitative input, and (c) provide recommendations for future action. Inquiry such as this does not begin with one truth but rather recognizes multiple realities (Guba, 1978). It is an important element in research to allow the reporting population the forum to identify the original interpretation of the data as correct (Linkenbach, 1995).

CHAPTER 4

RESULTS

Survey Results

The present research was undertaken to identify the perceived barriers to educational participation held by non-traditional freshman students at MSU-Northern. Both quantitative and qualitative research methods were used to generate data. In naturalistic inquiry generalizations are made based upon observations and the repeated clarification of these observations. Naturalistic inquiry involves an ongoing inductive process creating multiple applications. Deductive or rationalistic inquiry reduces a generalization down into a specific application. Whereas, the former is expansionistic, the latter is reductionistic.

This study investigated the perceived barriers to educational participation held by non-traditional freshmen students at Montana State University--Northern, a small four-year public postsecondary institution. This was done by examining how the variables of age, gender, marital status, number of children, employment status, income, race, college enrollment, and program of study affected the perception of situational, institutional and dispositional barriers.

Data for the study were collected from non-traditional freshmen students enrolled at Montana State University--Northern for the fall semester of 1997. The following questions were examined:

1. What are the perceived barriers to educational participation held by non-traditional freshman students at MSU-Northern?

2. Do factors such as age, gender, marital status, number of children, income, employment status, and race affect non-traditional student perception of barriers as situational, dispositional and institutional?
3. Does enrollment status affect the number of institutional, situational or dispositional barriers reported by the student?
4. Does the type of program the student is enrolled in affect the number of situational, dispositional, and institutional barriers reported by that student?
5. Is there a typology of adult learners who clearly identify certain items as barriers to participation?

This investigation was divided into two phases. In Phase 1, quantitative data from the research questionnaire were collected. Twenty-four items from the Learning, Interests and Experiences of Adults questionnaire (Carp, Peterson, and Roelfs, 1972) were adapted for use in this investigation. A summary of the frequency of responses and the means for these items can be found in the Appendix. In Phase 2, focus groups and interviews were conducted to discuss the data, to help in naming the groups identified in a cluster analysis, and to generate recommendations and suggestions for alleviating the barriers to participation of non-traditional students in higher education.

The student questionnaire consisted of thirty items. Individual responses to the various items on the five-point scale were totaled to produce a score for each individual and for each of the barriers. Three separate scales were constructed to measure the situational, institutional, and dispositional barriers of each respondent. The scales contained the following number of items: Situational, 9; Institutional, 10; and Dispositional, 11. Since the three scales had a different number of items, the scores for each scale were transformed to standard scores. This linear transformation maintained

the shape of the distribution "precisely the same as that of the original scores" (Roscoe, 1975, p. 74). First, the scores were transformed to z -scores which produced a score distribution with a mean of zero and a standard deviation of one (p. 75). However, since z -score distributions are awkward to deal with because of their negative scores, these scores were further transformed to z -scores with a mean of 50 and a standard deviation of 10; this is "a common choice that yields a score distribution with all positive values, ranging from approximately 20-80, while providing for extreme scores ranging from 0-100" (p. 77). These scores allowed for the investigator to compare participant responses because "when calculated for the same group of students, standard scores on different examinations have directly comparable means and standard deviations" (p. 78).

Although the 24-items on the Carp, Peterson, and Roelfs questionnaire have been categorized into three categories of barriers by Cross (1981), no actions have ever been undertaken to establish the validity of the instrument. Therefore, a factor analysis was conducted with the data from the sample for this study to explore the factor structure of the instrument. This analysis did not support the three factors which had been hypothesized by Cross as being in the instrument. Instead, the analysis revealed a four-factor solution. In the four-factor solution, items from the Dispositional scale and the Situational scale combined to create a fourth scale that was titled, Dispositional/Situational. The scales in the four-factor solution contained the following number of items: Situational--6, Institutional--9, Dispositional--9, and Dispositional/Situational--6. Since these four scales also contained a different number of items, the scores for each scale were transformed to standard scores for means of comparison as was done in the case of the three-factor solution.

Student responses were tabulated and placed into scales reflecting barriers that were situational, dispositional or institutional. As noted earlier, factor analysis yielded both a four-factor solution. For purposes of clarity and in search of meaning both the original three-factor solution and the four-factor solution were analyzed.

In the three-factor solution, barriers from the questionnaire were designated as situational, institutional or dispositional. For purposes of comparison, the range in scores is reported and any central tendencies. The range in scores on the factor labeled Situational was between 28.37 and 77.45. Sixty percent of the respondents fell below the mean on this barrier. On the factor labeled Institutional, the range was between 32.49 and 68.11, with many of the respondents bunched at the mean. On the factor labeled Dispositional, the scores ranged from 35.75 to 74.18. Sixty percent of the respondents fell below the mean. In the three-factor solution, this group exhibited a greater tendency to attribute barriers to institutional reasons.

In the four-factor solution, the range in scores on Situational was from 42.16 to 82.82. Almost 69% of the respondents scored below the mean on this situational barrier. As in the three-factor solution, this is not a strong barrier category for this group. For Institutional, Barriers the range was from 28.47 to 67.01. For Dispositional the range was from 36.23 to 71.99. On the fourth factor, the combination of dispositional and situational barriers, the range was between 32.29 and 72.96. On the last three factors the scores were distributed equally.

In comparing the three-factor solution with the four-factor solution, situational barriers received a low number in both instances. This group expressed more perceived difficulty in the areas of institutional and dispositional barriers with the three-factor

solution and in the areas of institutional, dispositional and situational/dispositional in the four-factor solution.

Discriminant Analysis: Three-Factor Solution

Descriptions of statistical procedures tend to be quite similar and many dissertations contain similar vocabulary when describing and reporting discriminant analysis. Although the American Psychological Association (1994) cautions writers to "not give a reference for statistics in common use" (p. 112), it should be noted that a widely used format was utilized in reporting the findings from this study. This format is based upon the works of Klecka (1980) and of Norusis (1988) who wrote the manual for the SPSS program which was used to process the data for this investigation.

Discriminant analysis is a statistical technique that allows the investigation of the differences between two or more groups in relationship to several variables simultaneously (Klecka, 1980, p.7). In discriminant analysis as with other multivariate techniques, the emphasis is upon analyzing the variables together rather than singly. In this way, the interaction of multiple variables can be considered (Conti, 1993, p. 90).

Discriminate analysis is a very useful tool. It can be used either to describe the way groups differ or to predict membership in a group. In this study, discriminant analysis was used to help the investigator evaluate the usefulness of certain categories of barriers in predicting group membership.

Discriminant analysis has a multivariate function in that it allows the researcher to maintain cases intact and at the same time look at a number of interacting variables. Each discriminant analysis produces one or more discriminant functions that may or may

not be useful in group classification. Discriminant analysis is used by the investigator as a tool to search for meaning and patterns in the quantitative data. "Discriminant analysis requires the researcher to make meaningful decisions about the data and to impose sense upon it" (Conti, 1993, p. 90).

In this study two criteria were used for judging the usefulness of the discriminant function in predicting group membership based upon type of barriers to participation. The first criterion was that the discriminant function produced by the analysis had to be describable using the structure coefficients. For this, the strength of each coefficient and its relationship to other coefficients were carefully examined. The second criterion was that the discriminant function had to correctly classify at least 75% of the cases in the analysis.

The first criterion was necessary because the formula for discriminant analysis produces a discriminant function regardless of whether the function is meaningful. The structure matrix contains the coefficients that show the similarity between each individual variable and the overall discriminant function. If several of the variables do not have a coefficient of at least .3, it is impossible to discern the meaning of the function. In analyses which use a large number of variables, it is possible to get functions which have high predictive ability but which correlate with so many of the variables that it is impossible to decipher the meaning of the function. Therefore, this criterion places a logical restriction on the interpretation of the statistical output that requires that it must have clarity in order to be used to support the hypothesis.

The second criterion demands that the discriminant function account for a significant amount of variance before it can be used. The criterion level of 75% is a 25% increase over a chance assignment in discriminant analyses with two groups. Thus, in

order for the discriminant function to be acceptable, it had to account for at least one-half of the variance available over a chance assignment.

Together these two criteria require that the results of a discriminant analysis be meaningful before they can be used to describe the groups. Analyses, which use a large number of variables, can produce functions which have high classification percentages but which offer no clear descriptive power. On the other hand, some analyses produce functions which can be clearly described but which have low classification power. Therefore, in combination these two criteria require that the function be both clearly descriptive and highly accurate in order to be used to support the hypothesis (Kolody, 1997, p. 72).

Number of Children

In this study, discriminant analysis was used to describe the combination of factors that could be used to predict group membership. In this first analysis the investigator was looking at the effect of number of children on perceived barriers. Respondents were placed in two groups. Group 1 had from zero to two children, Group 2 had more than two children. The groups were organized in this manner so that approximately one-half of the sample was in each group. Fifty-three percent of the respondents had one or two children. The remaining number had more than two children. The discriminating variables used to predict placement in these three groups consisted of the three barrier scales identified by Cross of Situational, Institutional, and Dispositional.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their two groups of one/two children or more than two

children. The pooled within-groups correlation matrix of discriminating variables was examined because interdependencies among variables are important in most multivariate analyses (Klecka, 1980, pp. 31-32). In order for multiple variables to be included in an analysis, they should not be sharing variance; a high correlation indicates that variables are overlapping or accounting for the same variance. The within-groups matrix reveals how the discriminant function is related to the variables within each group in the analysis. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Stepwise selection was used to determine which variables added most to the discrimination between the groups. Stepwise procedures produce an optimal set of discriminating variables. The selection of the most discriminating variables is an important part of discriminant analysis as it provides the researcher with another piece of information towards understanding and describing the group being studied. "One way to eliminate unnecessary variables is by using a stepwise procedure to select the most useful discriminating variables" (Klecka, 1980, p. 53). Although there are various ways of selecting variables for inclusion in the discriminant analysis, Wilks' lambda was chosen for this analysis because it takes into consideration both the differences between the groups and the cohesiveness within the groups (p. 54). Because of its approach to variable selection, Wilks' lambda is commonly used in discriminant analysis studies in education. As a result of this stepwise procedure, two variables were included in the discriminant function. The following discriminating variables and their corresponding Wilks' lambda values were selected: Situational (.93) and Institutional (.79). The other

variable included in the analysis did not account for enough variance to be included in the discriminant function.

Standardized discriminant function coefficients are used to determine which variables contribute most to the discrimination between the groups. By examining the standardized coefficients, the relative importance of each variable to the overall discriminant function can be established. The standardized coefficients for this function which discriminated between groups having zero to two children and those having more than two children were as follows: Situational (1.3), Institutional (-1.2).

The percentage of cases correctly classified shows how accurate the discriminant function was in grouping the respondents. This discriminant function was 75.6% accurate in classifying cases. It correctly placed 16 (72.7%) in Group 1, as having less than two children, and 15 (78.9%) in Group 2, as having more than two children. Thus, the discriminant function was a 25.6% improvement over chance predicting group placement. Consequently, it demonstrates that group membership can be distinguished on the basis of situational and institutional barriers.

The discriminating function that was used to classify the cases into the two groups was as follows:

$$D = .13 (\text{Situational}) - .11 (\text{Institutional}) - .91$$

The group centroid was .47 for Group 1, and -.54 for Group 2.

The canonical correlation is used to summarize the relationship between groups and the discriminant function. The canonical correlation is a "measure of association which summarizes the degree of relatedness between the groups and the discriminant function. A value of zero denotes no relationship at all, while large numbers (always positive) represent increasing degrees of association with 1.0 being the maximum"

(Klecka, 1980, p. 36). The canonical correlation was .46 for this study. When this is squared it indicates that the groups explained 21% of the variation in the discriminant function. This is the amount of variance between the groups that is explained by group membership.

The structure matrix contains the coefficients that show the similarity between each individual variable and the total discriminant function. The variables with the highest coefficients have the strongest relationship to the discriminant function. These coefficients are used to name the discriminant function because they show how closely the variables and the overall discriminant function are related. In a study such as this in which the discriminant analysis is used for descriptive purposes, this is the most important information related to the discriminant functions that satisfy the acceptance criteria. The fact that interpreting the structure matrix directly results in naming "the discriminant function so that qualitative terms exist to explain the interaction that exists among the variable in distinguishing among the groups" (Conti, 1993, p. 91; Klecka, 1980, pp. 31-34) is one reason why this is considered to be the most important information related to discriminant analysis. It is in this step that the researcher provides meaning to the discriminant function by interpreting the structure matrix.

This study contained three variables. The correlation coefficients for these were Situational (.52), Institutional (-.27), and Dispositional (.24). The Situational variable coefficient of .52 is twice as influential in naming the function as the other two variables. The Dispositional variable and the Institutional variable serve as modifiers, influencing the Situational variable. In the case of the Institutional variable the interaction is in the reverse direction. In naming the discriminant function, the investigator looked at the elements involved in Situational barriers. Situational barriers relate to those barriers

arising from one's situation in life at a given time. Lack of time due to job and home responsibilities, lack of money, lack of child care, and lack of transportation are examples of situational barriers.

Dispositional barriers are those related to attitudes and self-perceptions about oneself as a learner and about the learning itself. Feelings of being too old to learn and a lack of confidence in ability to learn are examples of dispositional barriers. This parallel interaction between high situational and moderate dispositional barriers with a negative interaction on institutional barriers can be named as Hyper-Context. The focus in this function is on the learner's perceived context both in the physical and the affective domain.

Group 1 scored high on Situational barriers. This group has one or two children. This group also scored higher than Group 2 on Dispositional barriers. Group 1 represents the group of learners for whom the context of the learning environment is very important. This context includes their personal life situation and their personal beliefs and attitudes about learning. This group is very concerned about the context of their life and what is happening to them. They see barriers within the context of their life situations, hence the name Hyper-Context.

Thus, a discriminant analysis was calculated to investigate the research question that it was possible to use three variables related to barriers to discriminate between group membership by number of children. Based on the percentage of variance explained by the discriminant function between groups and the percentage of accuracy of prediction into the groups by the discriminant function, it was determined that it is possible to use these three types of barriers to discriminate between groups categorized

by number of children. The process that discriminates between these two groups is Hyper Context.

Gender

An analysis was conducted to investigate if groups differed in their perceived barriers to participation when grouped according to gender. Females were placed in Group 1 and males in Group 2. The discriminant variables used to predict placement in these two groups consisted of the three barrier scales identified by Cross of Situational, Institutional and Dispositional.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their groups by gender. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. However, this process revealed that there was not enough variance between groups to calculate the discriminant analysis. Based on this, it was determined that it is impossible to use types of barriers to discriminate between groups categorized by gender.

Age

An analysis was conducted to investigate if groups differed in their perceived barriers to participation. When grouped according to age, Group 1 contained respondents under the age of 36. Group 2 contained respondents over the age of 35. This cut off point was established based upon the mean age for the total cases, which was 35, and placed approximately half of the sample in each group. The discriminant variables used

to predict placement in these two groups consisted of the three barrier scales identified by Cross of Situational, Institutional, and Dispositional.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in either one of the two groups by age. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure three variables were included in the discriminant function. These discriminating variables and their corresponding Wilks' lambda values were Situational (.97), Dispositional (.89), and Institutional (.87). The standardized discriminant coefficients used in the discriminant function that discriminates between groups by age were as follows: Situational (-1.4), Institutional (.61) and Dispositional (.90).

The percentage of cases correctly classified was 60%. The classification correctly placed 19 (65.5%) in the under 36 age group, and 14 (53.8%) in the over 35 age group. The discriminant function is only a 10% improvement over chance in predicting group membership. Consequently, because it is below the criterion level of 75% accurate placement, it demonstrates that age cannot be distinguished on the basis of the learner's perceived barriers.

The discriminant function that was used to classify the cases into groups was as follows:

$$D = -.14(\text{Situational}) + .06(\text{Institutional}) + .09(\text{Dispositional}) - .51.$$

The group centroid was $-.35$ for Group 1 and $.39$ for Group 2. The canonical correlation was $.35$. When this is squared, it indicates that the groups explained only 12% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows: Situational ($-.42$), Dispositional ($.31$) and Institutional ($.17$). Because of the low percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon age. Based on the low percentage of variance explained by the discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these three perceived barriers to distinguish groups categorized by age.

Race

An analysis was conducted to investigate if groups differed in their perceived barriers to participation when grouped according to race. Group 1 contained respondents who were "other than" Caucasian. Group 2 contained respondents who were Caucasian. With these groups 86% of the respondents were Caucasian. The remaining 14% were included in the four categories of African American, American Indian, Asian, or "Other". The discriminant variables used to predict placement in these two groups consisted of the three barrier scales identified by Cross of Situational, Institutional, and Dispositional.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in either one of the two groups by race. The examination of the

coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure, one variable was included in the discriminant function. This discriminating variable and its corresponding Wilks' lambda value was Institutional (.89). The other two variables included in the analyses did not account for enough variance to be included in the discriminant function. The standardized discriminant coefficient used in the discriminant function that discriminates between groups by race was Institutional (1.0).

The percentage of cases correctly classified was 71.7%. The classification correctly placed 5 (71.4%) in Group 1 (All Others) and 33 (71.7%) in Group 2 (Caucasian). The discriminant function is a 21% improvement over chance in predicting group membership. Consequently, because it is below the criterion level of 75% accurate placement, it demonstrates that race cannot be distinguished on the basis of the learners' perceived barriers.

The discriminant function that was used to classify the cases into groups was as follows:

$$D = .10(\text{Institutional}) - 5.2.$$

The group centroid was -.87 for Group 1 and -.13 for Group 2. The canonical correlation was .32. When this is squared it indicates that the groups explained only 9% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows: Institutional (1.0), Situational (.57), and Dispositional (.48). Because of the low

percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon race. Based on the low percentage of variance explained by the discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these three perceived barriers to distinguish groups categorized by race.

Marital Status

An analysis was conducted to investigate if groups differed in their perceived barriers to participation when grouped according to marital status. Sixty-five percent of the respondents were married. The remaining 35% were single, widowed or divorced. Hence, for purposes of discriminant analyses two groups were created. Group 1 was those who were "alone" and included never married, widowed, and divorced. Group 2 included all married respondents. The discriminant variables used to predict placement in these two groups consisted of the three barrier scales identified by Cross of Situational, Institutional, and Dispositional.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their groups by marital status. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure one variable

was included in the discriminant function. This discriminating variable and its corresponding Wilks' lambda value was (.93). The other two variables included in the analyses did not account for enough variance to be included in the discriminant function. The standardized discriminant coefficient used in the discriminant function that discriminates between groups by marital status was Situational (1.0).

The percentage of cases correctly classified was 61.1%. The classification correctly placed 9 (50%) in Group 1 and 24 (66.7%) in Group 2. The discriminant function was only an 11% improvement over chance in predicting group membership. Consequently, because it is below the criterion level of 75% accurate placement, it demonstrates that marital status cannot be distinguished on the basis of perceived barriers.

The discriminant function that was used to classify cases into groups was as follows:

$$D = .10(\text{Situational}) - 5.1.$$

The group centroid was .37 for Group 1 and -.18 for Group 2. The canonical correlation was .26. When this is squared, it indicates that the groups explained only 7.3% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows: Situational (1.0), Dispositional (.60), and Institutional (.59). Because of the low percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon marital status. Based on the low percentage of variance explained by the

discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these three perceived barriers to distinguish groups categorized by marital status.

Income

An analysis was conducted to investigate if groups differed in their perceived barriers to participation when grouped according to income into two groups. Fifty-five percent of the respondents reported income of between \$15,000 and \$19,999 per year. The remaining 45% reported an annual income of more than \$20,000. Therefore, groups were formed so that Group 1 contained respondents with income under \$20,000 and Group 2 consisted of respondents with income over \$20,000 per year. The discriminant variables used to predict placement in these two groups consisted of the three barrier scales identified by Cross of Situational, Institutional, and Dispositional.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their groups by marital status. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure one variable was included in the discriminant function. This discriminating variable and its corresponding Wilks' lambda value was Situational (.85). The other two variables included in the analyses did not account for enough variance to be included in the discriminant function. The standardized discriminant coefficient used in the discriminant function that discriminates between groups by marital status was Situational (1.0).

The percentage of cases correctly classified was 64.8%. The classification correctly placed 19 (63.3%) in Group 1 and 16 (66.7%) in Group 2. The discriminant function is only a 14% improvement over chance in predicting group membership. Consequently, because it is below the criterion level of 75% accurate placement it demonstrates that income cannot be distinguished on the basis of perceived barriers.

The discriminant function that was used to classify cases into groups was as follows:

$$D = .10(\text{Situational}) - 5.3.$$

The group centroid was .36 for Group 1 and -.46 for Group 2. The canonical correlation was .38. When this is squared it indicates that the groups explained only 14% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows:

Situational (1.0), Dispositional (.57), and Institutional (.56). Because of the low percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon income. Based on the low percentage of variance explained by the discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these three perceived barriers to distinguish groups categorized by income.

Employment Status

An analysis was conducted to investigate if groups differed in their perceived barriers to participation when grouped according to employment status into the two groups of full-time employed and not full-time employed. Group 1 contained respondents who were not full-time, and Group 2 contained respondents who were employed full-time. The discriminant variables used to predict placement in these two groups consisted of the three barrier scales identified by Cross of Situational, Institutional, and Dispositional.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their groups by gender. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. However this process indicated that there was not enough variance between groups to calculate the discriminant analysis. Based on this it was determined that it is impossible to use these three types of barriers to discriminate between groups categorized by employment status.

College Enrollment Status

This investigation sought to determine if groups differed in their perceived barriers to participation based upon their college enrollment status. For purposes of this discriminant analyses, the respondents were grouped according to whether they were enrolled in college as either a full-time or part-time student. Forty seven percent of the respondents indicated full-time enrollment while the remaining 52% indicated part-time

enrollment. Group 1 contained those students enrolled full-time, and Group 2 contained those students enrolled part-time. The discriminant variables used to predict placement in these two groups consisted of the three barrier scales identified by Cross of Situational, Institutional, and Dispositional.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their groups by college enrollment status. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure two variables were included in the discriminant function. The following discriminating variables and their corresponding Wilks' lambda value were selected: Situational (.96) and Institutional (.94). The other variable included in the analyses did not account for enough variance to be included in the discriminant function. The standardized discriminant coefficient used in the discriminant function that discriminates between groups by marital status was: Situational (1.2) and Institutional (-.83). The percentage of cases correctly classified was 54.5%. The classification correctly placed 13 (50%) in Group 1 and 17 (58.6%) in Group 2. The discriminant function is only a 4% improvement over chance in predicting group membership. Consequently, because it is below the criterion level of 75% accurate placement, it demonstrates that college enrollment status cannot be distinguished on the basis of perceived barriers.

The discriminant function that was used to classify cases into groups was as follows:

$$D = .12(\text{Situational}) - .08(\text{Institutional}) - 2.3/$$

The group centroid was .24 for Group 1 and -.21 for Group 2. The canonical correlation was .22. When this is squared, it indicates that the groups explained only 4.8% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows: Situational (.76), Dispositional (.37), and Institutional (-.02). Because of the low percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon college enrollment status. Based on the low percentage of variance explained by the discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these three perceived barriers to distinguish groups categorized by college enrollment status.

Program

This investigation sought to determine if groups differed in their perceived barriers to participation based upon their program of enrollment. For purposes of this discriminant analyses the respondents were grouped according to whether they were enrolled in a bachelor's degree program or less than a bachelor's degree program. Fifty-three percent of the respondents had indicated that they were enrolled in a bachelor's degree Program. The remaining 47% were not enrolled in a bachelor's degree Program. Group 1 contained those students enrolled in a bachelor's degree program and Group 2 contained those students not enrolled in a bachelor's degree program. The discriminant

variables used to predict placement in these two groups consisted of the three barrier scales identified by Cross of Situational, Institutional, and Dispositional.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their groups by college enrollment status. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure one variable was included in the discriminant function. This discriminating variable and its corresponding Wilks' lambda value was Institutional (.97). The two other variables included in the analyses did not account for enough variance to be included in the discriminant function. The standardized discriminant coefficient used in the discriminant function that discriminates between groups by marital status was Institutional (1.0).

The percentage of cases correctly classified was 58.1%. The classification correctly placed 16 (61.5%) in Group 1 and 16 (55.2%) in Group 2. The discriminant function is only an 8% improvement over chance in predicting group membership. Consequently, because it is below the criterion level of 75% accurate placement, it demonstrates that enrollment in a Bachelor's Degree program cannot be distinguished on the basis of perceived barriers.

The discriminant function that was used to classify cases into groups was as follows:

$$D = .10(\text{Institutional}) - 5.0$$

The group centroid was -.17 for Group One and .16 for Group Two. The canonical correlation was .17. When this is squared it indicates that the groups explained only

2.8% of the variation in the discriminant function. The variables in the structure matrix and their coefficients were as follows: Institutional (1.0), Situational (.61), Dispositional (.50). Because of the low percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon enrollment in a Bachelor's Degree program. Based on the low percentage of variance explained by the discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these three perceived barriers to distinguish groups categorized by enrollment in a Bachelor's Degree program.

Discriminant Analysis: Four-Factor Solution

Race

An analysis was conducted to investigate if groups differed in their perceived barriers to participation when grouped according to race. Group 1 contained respondents who were "other than Caucasian" Group 2 contained Caucasians. With these groupings 86% of the respondents were Caucasian. The remaining 14% were included in the four categories of African American, American Indian, Asian, and "Other". The discriminant variables used to predict placement in these two groups consisted of the four barrier scales identified in the four-factor solution of Situational, Institutional, Dispositional, and Dispositional/Situational.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in either one of the two groups by race. The examination of the

coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure, three variables were included in the discriminant function. These discriminating variables and their corresponding Wilks' lambda values were Institutional (.87), Situational (.85), and Dispositional/Situational (.81). The other variable included in the analyses did not account for enough variance to be included in the discriminant function. The standardized discriminant coefficients used in the discriminant function which discriminates between groups by race were Institutional (.76), Dispositional/ Situational, (-.52), and Situational (.61).

The percentage of cases correctly classified was 77.36%. The classification correctly placed 6 (85.7%) in Group 1 and 35 (76.1%) in Group 2. The discriminant function was a 27% improvement over chance in predicting group membership. Consequently it demonstrates that race can be distinguished on the basis of the learner's perceived barriers. The discriminant function that was used to classify the cases into groups was as follows:

$$D = .08(\text{Institutional}) - .05(\text{Dispositional/ Situational}) + .06(\text{Situational}) - 4.6.$$

The group centroid was 1.1 for Group 1 and -.18 for Group 2. The canonical correlation was .42. When this is squared it indicates that the groups explained 17% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows: Institutional (.78), Situational (.66), Dispositional (.27), and Dispositional/Situational (.01). The Institutional and Situational variable coefficients of .78 and .66 are almost

three times as influential in naming the function as the Dispositional variable. They are six and seven times more influential in naming the function as the Dispositional/Situational variable. Both Institutional and Situational barriers are found to exist in one's external environment. Lack of time due to job and home responsibilities, lack of money, lack of child care, and lack of transportation are examples of Situational barriers.

Institutional barriers are those perceived limitations placed upon a group of learners by the policies and procedures of the institution. The strong influence of external barriers upon this group with a very low influence of Dispositional barriers that are basically internal in their origin suggests a locus of control function. This group can be named "externally driven". The focus in this function is on the learner's environment and the locus of control. Group 1 expressed a high incidence of Institutional and Situational barriers. Group 1 consisted of "other than Caucasian". Group 2, Caucasian, expressed a low incidence of Institutional and Situational barriers.

Thus, a discriminant analysis was calculated to investigate the research question that it was possible to use four variables related to barriers to discriminant between group membership by race. Based on the percentage of variance explained by the discriminant function between groups and the percentage of accuracy of prediction into the groups by the discriminant function, it was determined that it is possible to use these types of barriers to distinguish between groups categorized by race.

Age

An analysis was conducted to investigate if groups differed in their perceived barriers to participation when grouped according to age. Group 1 contained respondents under the age of 36. Group 2 contained respondents over the age of 35. This cut off

point was established based upon the mean age for the total cases which was 35, and placed approximately half of the sample in each group. The discriminant variables used to predict placement in these two groups consisted of the four barrier scales of Situational, Institutional, Dispositional, and Dispositional/Situational.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in either one of the two groups by age. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure two variables were included in the discriminant function. These discriminating variables and their corresponding Wilks' lambda values were Situational (.96), and Dispositional (.91). The standardized discriminant coefficients used in the discriminant function which discriminates between groups by age were as follows: Dispositional (-.89) and Situational (1.0).

The percentage of cases correctly classified was 63.6%. The classification correctly placed 19 (65.5%) in the under 36 age group, and 16 (61.5%) in the over 35 age group. The discriminant function is only a 13% improvement over chance in predicting group membership. Consequently, because it is below the criterion level of 75% accurate placement, it demonstrates that age cannot be distinguished on the basis of the learner's perceived barriers.

The discriminant function that was used to classify the cases into groups was as follows:

$$D = -.08(\text{Dispositional}) + 10(\text{Situational}) - .84.$$

The group centroid was .28 for Group 1 and -.31 for Group 2. The canonical correlation was .29. When this is squared it indicates that the groups explained only 8.4% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows: Situational (.61), Dispositional (-.41), Institutional (.06), and Dispositional/Situational (-.02). Because of the low percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon age. Based on the low percentage of variance explained by the discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these four types of barriers to distinguish groups categorized by age.

Gender

An analysis was conducted to investigate if groups differed in their perceived barriers to participation when grouped according to gender. Females were placed in Group 1, and males in Group 2. The discriminant variables used to predict placement in these two groups consisted of the four barrier scales of Situational, Institutional, Dispositional, and Dispositional/Situational.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their groups by gender. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure three variables were included in the discriminant function. These discriminating variables and their corresponding Wilks' lambda values were Situational (.91), Dispositional (.84) and Institutional (.79). The standardized discriminant coefficients used in the discriminant function that discriminates between groups by age were as follows: Dispositional (.60), Institutional (.58), and Situational (-1.1).

The percentage of cases correctly classified was 67.27%. The classification correctly placed 27 (71.1%) in the Group 1 and 10 (58.8%) in Group 2. The discriminant function was a 17% improvement over chance in predicting group membership. Consequently, because it is below the criterion level of 75% accurate placement, it demonstrates that age cannot be distinguished on the basis of the learner's perceived barriers.

The discriminant function that was used to classify the cases into groups was as follows:

$$D = -.06(\text{Dispositional}) + .05(\text{Institutional}) - .12(\text{Situational}) - .14.$$

The group centroid was .33 for Group 1 and -.74 for Group 2. The canonical correlation was .45. When this is squared it indicates that the groups explained only 25% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows: Situational (-.58), Institutional (.27), Dispositional (.26), and Dispositional/Situational (.10). Because of the low percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon gender. Based on the low percentage of variance explained by the discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these four perceived barriers to distinguish groups categorized by gender.

Marital Status

An analysis was conducted to investigate if groups differed in their perceived barriers to participation when grouped according to marital status. Sixty-five percent of the respondents were married. The remaining 35% were either single, widowed or divorced. Hence, for purposes of discriminant analyses two groups were created. Group 1 was those who were "alone" and included never married, widowed, and divorced. Group 2 included all married respondents. The discriminant variables used to predict placement in these two groups consisted of the four barrier scales of Situational, Institutional, Dispositional, and Dispositional/Situational.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their groups by marital status. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure three variables were included in the discriminant function. These discriminating variables and their corresponding Wilks' lambda values were Institutional (.90), Dispositional/

Situational (.84), and Situational (.78). The other variable included in the analyses did not account for enough variance to be included in the discriminant function. The standardized discriminant coefficients used in the discriminant function which discriminates between groups by marital status was: Institutional (.72), Dispositional/Situational (-.79) and Situational (.65).

The percentage of cases correctly classified was 72.2%. The classification correctly placed 14 (77.8%) in Group 1 and 25 (69.4%) in Group 2. The discriminant function was only a 22% improvement over chance in predicting group membership. Consequently, because it is below the criterion level of 75% accurate placement, it demonstrates that marital status cannot be distinguished on the basis of perceived barriers.

The discriminant function that was used to classify cases into groups was as follows:

$$D = .07(\text{Institutional}) - .07(\text{Dispositional/Situational}) + .06(\text{Situational}) - 3.2.$$

The group centroid was .72 for Group 1 and -.36 for Group 2. The canonical correlation was .46. When this is squared it indicates that the groups explained only 21.1% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows: Institutional (.61), Situational (.57), Dispositional/Situational (-.21), and Dispositional (.16). Because of the low percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon marital status. Based on the low percentage of variance explained by the

discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these four perceived barriers to distinguish groups categorized by marital status.

Number of Children

In this study, discriminant analysis was used to describe the combination of factors that could be used to predict group membership. Respondents were placed in two groups. Group 1 had zero to two children, while those in Group 2 had more than two children. The groups were organized in this manner so that approximately one-half of the sample was in each group. Fifty-three percent of the respondents had zero to two children. The remaining number had more than two children. The discriminating variables used to predict placement in these three groups consisted of the four barrier scales of Situational, Institutional, Dispositional, and Dispositional/Situational.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their groups by number of children. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure one variable was included in the discriminant function. The following discriminating variable and its corresponding Wilks' lambda value was selected: Situational (.96). The other variables included in the analyses did not account for enough variance to be included in the discriminant function. The standardized discriminant coefficients used in the

discriminant function that discriminate between groups by marital status was Situational (1.0).

The percentage of cases correctly classified was 46.34%. The classification correctly placed 8 (36.4%) in Group 1 and 11 (57.9%) in Group 2. The discriminant function is 4% lower than chance in predicting group membership. Consequently, because it is below the criterion level of 75% accurate placement, it demonstrates that number of children cannot be distinguished on the basis of perceived barriers.

The discriminant function that was used to classify cases into groups was as follows:

$$D = .09(\text{Situational}) - 4.8$$

The group centroid was .16 for Group 1 and -.19 for Group 2. The canonical correlation was .18. for this study. When this is squared it indicates that the groups explained only 3% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows: Situational (1.0), Institutional (.44), Dispositional/Situational (.39), and Dispositional (.35). Because of the low percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon number of children. Based on the low percentage of variance explained by the discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these four perceived barriers to distinguish groups categorized by number of children.

Income

An analysis was conducted to investigate if groups differed in their perceived barriers to participation when grouped according to income into two groups. Fifty-five percent of the respondents reported income of between \$15,000 and \$19,999 per year. The remaining 45% reported an annual income of more than \$20,000. Therefore, groups were formed so that Group 1 contained respondents with income under \$20,000 and Group 2 consisted of respondents with income over \$20,000 per year. The discriminant variables used to predict placement in these two groups consisted of the four barrier scales of Situational, Institutional, Dispositional and Dispositional/Situational.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their groups by marital status. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure one variable was included in the discriminant function. This discriminating variable and its corresponding Wilks' lambda value was Institutional (.85). The other three variables included in the analyses did not account for enough variance to be included in the discriminant function. The standardized discriminant coefficient used in the discriminant function that discriminates between groups by marital status was Institutional (1.0).

The percentage of cases correctly classified was 64.8%. The classification correctly placed 20 (66.7%) in Group 1 and 15 (62.5%) in Group 2. The discriminant function is only a 14% improvement over chance in predicting group membership.

Consequently, because it is below the criterion level of 75% accurate placement, it demonstrates that income cannot be distinguished on the basis of perceived barriers.

The discriminant function that was used to classify cases into groups was as follows:

$$D = .10(\text{Institutional}) - 5.3.$$

The group centroid was .36 for Group 1 and -.45 for Group 2. The canonical correlation was .38. When this is squared it indicates that the groups explained only 14% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows: Institutional (1.0), Situational (.34), Dispositional (.33), and Dispositional/ Situational (.31). Because of the low percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon income. Based on the low percentage of variance explained by the discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these four perceived barriers to distinguish groups categorized by income.

Employment Status

An analysis was conducted to investigate if groups differed in their perceived barriers to participation when grouped according to employment status into the two groups of full-time employed and not full-time employed. Group 1 contained respondents who were not full-time, and Group 2 contained respondents who were

employed full-time. The discriminant variables used to predict placement in these two groups consisted of the four-barrier scale of Situational, Institutional and Dispositional and Dispositional/Situational.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their groups by gender. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure two variables were included in the discriminant function. These discriminating variables and their corresponding Wilks' lambda values were Dispositional/ Situational (.94), and Dispositional (.84). The other two variables included in the analyses did not account for enough variance to be included in the discriminant function. The standardized discriminant coefficients used in the discriminant function which discriminates between groups by marital status were: Dispositional (-.98) and Dispositional/Situational (1.0).

The percentage of cases correctly classified was 67.278%. The classification correctly placed 27 (65.9%) in Group 1 and 10 (71.4%) in Group 2. The discriminant function is only a 17% improvement over chance in predicting group membership. Consequently, because it is below the criterion level of 75% accurate placement, it demonstrates that income cannot be distinguished on the basis of perceived barriers.

The discriminant function that was used to classify cases into groups was as follows:

$$D = -.09(\text{Dispositional}) + .10(\text{Dispositional/Situational}) - .50.$$

The group centroid was $-.24$ for Group 1 and $.71$ for Group 2. The canonical correlation was $.39$. When this is squared it indicates that the groups explained only 15% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows: Dispositional/Situational ($.54$), Dispositional ($-.41$), Situational ($-.03$) and Institutional ($.007$). Because of the low percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon employment status. Based on the low percentage of variance explained by the discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these four perceived barriers to discriminate between groups categorized by employment status.

College Enrollment Status

This investigation sought to determine if groups differed in their perceived barriers to participation based upon their college enrollment status. For purposes of this discriminant analyses, the respondents were grouped according to whether they were enrolled in college as either a full-time or part-time student. Forty-seven percent of the respondents indicated full-time enrollment while the remaining 52% indicated part-time enrollment. Group 1 contained those students enrolled full-time, and Group 2 contained those students enrolled part-time. The discriminant variables used to predict placement in these two groups consisted of the four barrier scales of Situational, Institutional, Dispositional, and Dispositional/Situational.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their groups by college enrollment status. The examination of the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure two variables were included in the discriminant function. These discriminating variables and their corresponding Wilks' lambda value were Situational (.96), and Dispositional/ Situational (.92). The other variables included in the analyses did not account for enough variance to be included in the discriminant function. The standardized discriminant coefficients used in the discriminant function which discriminates between groups by marital status were: Dispositional/Situational (-.76) and Situational (1.0).

The percentage of cases correctly classified was 56.3%. The classification correctly placed 14 (53.8%) in Group 1 and 17 (58.6%) in Group 2. The discriminant function is only a 6% improvement over chance in predicting group membership. Consequently, because it is below the criterion level of 75% accurate placement, it demonstrates that college enrollment status cannot be distinguished on the basis of perceived barriers.

The discriminant function that was used to classify cases into groups was as follows:

$$D = -.07(\text{Dispositional/Situational}) + .10(\text{Situational}) - 1.3.$$

The group centroid was .28 for Group 1 and -.25 for Group 2. The canonical correlation was .26. When this is squared it indicates that the groups explained only 6.7% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows: Situational (.70), Dispositional/Situational (-.37), Institutional (.12), and Dispositional (.06). Because of the low percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon college enrollment status. Based on the low percentage of variance explained by the discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these four perceived barriers to distinguish groups categorized by college enrollment status.

Program

This investigation sought to determine if groups differed in their perceived barriers to participation based upon their program of enrollment. For purposes of this discriminant analyses the respondents were grouped according to whether they were enrolled in a bachelor's degree program or less than a bachelor's degree program. Fifty-three percent of the respondents had indicated that they were enrolled in a bachelor's degree Program. The remaining 47% were not enrolled in a bachelor's degree Program. Group 1 contained those students enrolled in a bachelor's degree program and Group 2 contained those students not enrolled in a bachelor's degree program. The discriminant variables used to predict placement in these two groups consisted of the four barrier scales of Situational, Institutional, Dispositional, and Dispositional/Situational.

The pooled within-groups correlations are the correlations for the variables with the respondents placed in their groups by college enrollment status. The examination of

the coefficients in this analysis showed that the variables in this discriminant analysis were highly related, indicating shared variance may be occurring.

Step-wise selection was used to determine which variables added most to the discrimination between the groups. As a result of this step-wise procedure one variable was included in the discriminant function. This discriminating variable and its corresponding Wilks' lambda value was Institutional (.96). The other variables included in the analyses did not account for enough variance to be included in the discriminant function. The standardized discriminant coefficient used in the discriminant function that discriminates between groups by marital status was Institutional (1.0).

The percentage of cases correctly classified was 60%. The classification correctly placed 17 (65.4%) in Group 1 and 16 (55.2%) in Group 2. The discriminant function is only a 10% improvement over chance in predicting group membership. Consequently, because it is below the criterion level of 75% accurate placement, it demonstrates that enrollment in a Bachelor's Degree program cannot be distinguished on the basis of perceived barriers.

The discriminant function that was used to classify cases into groups was as follows:

$$D = .10(\text{Institutional}) - 5.0$$

The group centroid was -.20 for Group 1 and .18 for Group 2. The canonical correlation was .19. When this is squared it indicates that the groups explained only 3.6% of the variation in the discriminant function.

The variables in the structure matrix and their coefficients were as follows:

Institutional (1.0), Situational (.41), Dispositional (.38), and Dispositional/ Situational

(.35). Because of the low percentage of variance explained by the discriminant function and the lack of accuracy in classification, the discriminant function was not named.

Thus, a discriminant analyses was calculated to investigate the research question that it was possible to use categories of barriers to discriminate between groups based upon enrollment in a Bachelor's Degree program. Based on the low percentage of variance explained by the discriminant function between groups and the low accuracy of prediction into the groups by the discriminant function, it was determined that it is not possible to use these four perceived barriers to distinguish groups categorized by enrollment in a Bachelor's Degree program.

Summary

In this study, discriminant analysis was used to analyze the relationship between categories of perceived barriers and various demographic variables. With the exception of number of children in the three-factor solution and race in the four-factor solution, categories of perceived barriers were not useful in distinguishing similar groups of non-traditional freshmen at Montana State University--Northern.

Cluster Analysis

Following the discriminant analysis, cluster analysis was initiated to determine if groups of learners could be identified based on the four-factor solution found in the data. This involved the use of cluster analysis, one-way analysis of variance, and focus groups to help describe the clusters. Cluster analysis is a "useful statistical procedure to discover structure in data that is not readily apparent by visual inspection or by appeal to other

authority" (Aldenderfer & Blashfield, 1984, p. 16). Instead of trying to impose a singular conclusion upon the data, the data is used as the basis for gaining insight and understanding about the respondents that generates multiple conclusions. Rather than imposing sense upon the data, the goal is to have meaning and understanding emanate from the data itself (Conti, 1996, p. 67).

Cluster analysis is a multivariate statistical procedure that seeks to identify homogeneous groups or clusters (Aldenderfer & Blashfield, 1984, Chapter 1; Norusis, 1988, p. B-71). In cluster analysis the person is examined intact, all variables are kept together for the individual and analyzed in relationship to one another (Conti, 1996, p. 67). "A commonly used method for forming clusters is hierarchical cluster analysis . . . In agglomerative hierarchical clustering, clusters are formed by grouping cases into bigger and bigger clusters until all cases are members of a single cluster" (Norusis, 1988, p. B-72). In forming clusters using an agglomerative process, the computer goes through four procedures: (1) computes the proximities between the individual cases, (2) combines the two nearest clusters to form a new cluster, (3) recomputes the proximities between existing clusters and the new cluster, and (4) returns to the second step until all cases have been combined into one cluster (Norusis, 1988, p. 405).

Before cluster analysis is run the researcher must decide upon (1) which variables to use for the cluster formation, (2) how distance between cases will be measured, and (3) what criteria will be used for combining cases into clusters (Norusis, 1988, p. B-71). "The choice of variables to be used with cluster analysis is one of the most critical steps in the research process . . . Ideally, variables should be chosen within the context of an explicitly stated theory that is used to support the classification" (Aldenderfer & Blashfield, 1984, pp. 19-20). In this investigation the following four barriers were

included: Dispositional, Institutional, Dispositional/Situational, and Situational. These four categories of barriers were chosen because they are the result of the factor analyses and represent the theory proposed by Cross.

There are several methods for determining how distances between cases will be measured; each of these methods is concerned with the concepts of distance and similarity. Similarity is a measure of the closeness of cases whereby distance is related to how far apart two cases are. Although there are four types of similarity measures, "only correlation and distance coefficients have had widespread use in the social sciences" (Alenderfer & Blashfield, 1984, p. 22). The squared Euclidean measure was used in this investigation. It is the sum of the squared differences over all of the variables (Norusis, 1988, p. B-72).

There are several methods for determining how cases will be combined into clusters. The Ward's method has been widely used in the social sciences and was chosen in this study because "it is designed to optimize the minimum variance within clusters and tends to create clusters of relatively equal size" (Alenderfer & Blashfield, 1984, p. 43).

Several potential cluster solutions were considered for this study. Using the standard cluster procedure in SPSS-PC, the four cluster solution was determined to be the most appropriate for this data set based on the distribution of participants in each group.

A one-way analysis of variance (ANOVA) was conducted on each of the four variables of Situational, Institutional, Dispositional, and Dispositional/Situational to determine if there were significant differences among the four cluster groups. Significant differences existed for three of the variables. There was no significant difference

between groups on the Dispositional/Situational variable. Therefore, only three variables were retained in the analysis to characterize and assist in naming the groups.

The largest of the four cluster groups contained 21 cases and were those students who perceived very few, if any barriers at all to their participation. The next largest group had 14 cases and reported primarily institutional barriers as deterrents to participation. The third and fourth group each had 10 cases. One of these contained cases of students who reported all three categories of barriers has being deterrents to participation. The final cluster contained those cases of students who reported dispositional barriers as being deterrents to participation. The names for the clusters were derived from a statistical profile of each group based on demographics, barrier attributes and from follow-up analysis of qualitative interviews with participants from the various groups.

Focus groups and interviews were conducted with non-traditional students from each cluster to gather data to assist in naming and further describing the groups. The use of focus groups and interviews when used with the quantitative data provided additional insight into the non-traditional freshman student at Montana State University--Northern. The use of these two types of data provides the investigator with expanded information to further describe and explain the clusters (Conti, 1996, p. 71).

The design for this stage of data gathering has evolved from a series of investigations in Montana (Conti & Fellenz, 1991; Conti & Kolody, 1995; Kolody & Conti, 1996; Lockwood, 1997; Strakal, 1995; Yabui, 1993). In these studies, "a triangulation process has been developed for interpreting cluster compositions. This process involves using the existing quantitative data and gathering additional qualitative data" (Conti, 1996, p. 70) through personal interviews and focus groups.

Because not all of the respondents were able to participate in focus groups some of the data was collected through individual interviews. "In case study research of contemporary education, some and occasionally all of the data are collected through interviews" (Merriam, 1988, p. 71). The format of group interviews which is used in focus groups can be useful in enhancing the interaction between the researcher and the respondents. The group interaction becomes the power of the interview (Moran, 1988, p. 12).

A total of 15 students participated in the interviewing process. Ten of these students participated in individual interviews; five participated in one focus group.

Thus, through quantitative and qualitative means, four distinct groups of non-traditional freshmen students were identified and described. In combination these techniques allowed the research questions which asked about the description of these non-traditional students and their barriers to be answered. The following descriptions of the four groups of non-traditional freshmen students are the results of cluster analysis, the analysis of variance conducted with each variable when participants were grouped by clusters, and comments from students within each cluster that were collected during focus groups and personal interviews.

Seekers

The Seekers were those non-traditional freshmen who report no perceived barriers. They were the largest group of the four types and contained the most even distribution of males to females. Fifty-seven percent were female, and 42% were male. Ninety-five percent of this group was Caucasian. Seventy-six percent were married. Fifty-three percent of this group had one or two children. Sixty percent of the

respondents reported an annual income of more than \$20,000. One third of this group reported working over forty hours a week while another third reported working from 20 to 40 hours a week. Although 61% of them were enrolled in college full-time, only 38% were enrolled in a bachelor's degree program. Twenty percent were enrolled in an associate's degree program and over 40% were either undecided or in a non-degree program. This group of non-traditional students was experimenting with returning to college. Some were taking courses that will lead to career advancement. Others were in school to meet the requirements for recertification or retraining. Some were enrolled for leisure and social reasons. In interviews and focus groups these students gave the following reasons for returning to school:

1. It was a change of pace.
2. My wife has a degree and I thought I might go back and take some classes.
3. I wasn't sure what I was doing, but it seemed interesting.
4. I needed to take a class for my work.
5. Someone said it would be fun and I'd meet some new people.

Many of these students were "place-bound," unable to attend classes on campus and instead were taking courses through independent study, continuing education or Northnet, MSU-Northern's distance learning program.

1. I have to work, and there was a class I could take and not interrupt my work schedule.
2. I didn't want to come to Havre, but I could take a class on Northnet.

Members of this group were enrolled in classes for a variety of reasons. The profile was one of the student who returns to school later in life, seeking to explore a new career opportunity or to enhance an existing career. Less than 10% of those in this group

reported being unemployed, over 50% of this group were women, indicating that for women in this group child-care was not a major deterrent. The socioeconomic level of this group was moderate to high. In addition, 76% of the group were married. These two factors may account for the absence of child-care issues. Family income and support from a spouse living in the home may help to overcome the problems associated with situational barriers. This group reported few, if any dispositional or institutional barriers to participation. This could be in part a result of the fact that members of this group were not pressured into attending school, but had chosen to return for personal reasons and were enjoying the process of "seeking."

Challengers

The Challengers were named because they reported a large number of barriers or challenges and because they were a challenge for the institution. Challengers were full-time, bachelor degree seeking non-traditional students. Situational, institutional and dispositional barriers were a challenge for this group. When asked to describe some of the problems they encountered in coming to school members of the focus group gave a variety of different responses. Many of them were concerned with issues relating to time and money and how to juggle work and school. "I am worried about having enough time and enough money to go to school." In the case of one student work and school were in major conflict, "I don't get off from work until right before my math class starts. Sometimes I can't get away from work and I miss math class." Class schedules and time of classes presented problems for this group. "Classes are scheduled at times when I can't attend." Fears relating to personal efficacy and the ability to succeed were voiced repeatedly by students in the focus group. "I didn't feel very good about my ability to

succeed," was a common refrain from the members of this group. In addition, some of the students in the focus group were unclear about goals and future direction. "I don't know what I want to do." Others voiced a concern about needing help making career decisions and choosing courses. "I don't know who my advisor is, who will help me choose classes for next semester?"

Seventy percent of the Challengers were female. Similar to the type one learners found in Valentine and Darkenwald's typology of learners, this group was made up of predominantly single mothers (Valentine & Darkenwald, 1990). Only 30% of the Challengers were married. Sixty-two percent of the challengers reported having one or two children. The remaining 38% had three children. Issues relating to child-care were a concern. Role conflicts and issues surrounding competing demands upon time were voiced by members of this group. " I have two children and day-care is a concern. I decided to be a mom and I think that is going to have to come first."

Sixty percent were Caucasian, 20% American Indian and 20% listed "other" for their ethnic background. This group reported the lowest yearly income of the four groups. Ninety percent of the Challengers made less than \$20,00 per year and 60% made less than \$10,000 per year. Thirty percent reported a yearly income of under \$5,000. Half of this group reported no employment. "My husband is also in school and he had to quit his job. Now I am the only one working." Even though this group reported the lowest yearly income of all four groups, 60% of the Challengers were enrolled in a full-time bachelor's degree program.

This group, though highly challenged, was highly motivated to succeed. Their high enrollment in a full-time bachelor degree program is an indication of their willingness to overcome the perceived barriers to participation.

Explorers

The Explorers were a group of non-traditional freshmen who were primarily enrolled part-time. Only 42% of the Explorers reported being enrolled in a full-time program. Institutional barriers were a major deterrent for the Explorers.

Classes were scheduled at times when I couldn't attend.

I couldn't find my faculty advisor.

It took me a long time to get registered.

It took a long time to get my financial aid.

In addition, Explorers had problems with dispositional barriers. The attitudes and beliefs that Explorers held about themselves as learners and about college, were barriers to participation. Many of this group talked about feeling out of place and uncomfortable at college. "I was wary of going, my age was a problem." Others had unrealistic expectations of what college really was. "I expected something different, I thought it would be like high-school."

Over three-fourths of this group were white females. Two-thirds were married with between two and four children. The average yearly income for this group was less than \$20,000. Thirty-five percent reported working 20-40 hours a week. Although only a little over 40% of the Explorers were full-time students, 71% were enrolled in a bachelor's degree program.

The Introspectors

The Introspectors were those non-traditional freshmen who reported no problems with situational or institutional barriers, but who had a large number of dispositional barriers. Eighty percent of this group was female. The average age of this group, 36.1,

was higher than the other three groups. The entire group of Introspectors was Caucasian. Eighty percent were married, and 66% reported having one or two children. The yearly income reported by this group ranged from \$10,000 to over \$50,000. Thirty percent of the respondents reported a yearly income in excess of \$35,000. Ten percent of this group reported no employment while 10% reported working over forty hours a week. Twenty percent reported being employed 1-19 hours and the remaining number reported working 20-39 hours a week. This group expressed a number of concerns related to self-confidence and self-esteem.

It was terrifying. I looked at my textbooks and said, "Oh my God, I'm not that smart."

I was so afraid of failure.

I'm not smart enough.

I can't do this.

Situational and institutional barriers played little part in this group's perceptions of barriers. The Introspectors placed a great deal of importance on what they thought and felt about themselves and about the learning. They were driven by internal forces which either helped them or hindered them in overcoming their fears. Many of the members of this group voiced this in the focus group. "I never thought of quitting. This has been my goal since I was 18 years old." "I got really clear about what I want from life and four years from now. Nothing will stop me, that's where I want to be."

Perceptions of being too old worried this group. They were afraid they had missed the time for college. Many of this group expressed fears about not being able to succeed because of their age. They were also afraid of being the only older student in class.

I thought I'd be the only old person.

I was afraid of being the oldest and feeling out of place.

It took me three years to walk in the door.

I didn't know what non-traditional meant, I just knew I was old.

Fears about previous failures and poor study habits were reported by this group.

Many of the Introspectors had poor academic backgrounds. They had done poorly in high school, had problems with reading textbooks, studying, taking tests, and were generally unsure about their ability to be successful. This group brought a great deal of negative prior experience with them to college. This was summed up by one member of the focus group who said, "I was worried about my study habits. I didn't do very well in high-school, and as much as I want to do this, I still wonder if I can."

This group found that it took them only a short time to overcome their initial fears. Once they felt comfortable in the college environment and had experienced some success they were highly motivated to continue. Comments such as, "I didn't know I was this smart." or "Look what I can do!" were typical of this group once they got going. This group was highly motivated to succeed and excited about their new opportunities. "I'm so excited about this. I am so anxious to get there in the morning . . . I've only missed one day of school." "My only regret is that I didn't do it sooner . . . I'll be 40 soon!" Members of this group wanted to help other non-traditional students and voiced a concern about ongoing programs and orientation activities. "Because this is how I was feeling I intend to be there for the new non-trads next year." The non-traditional student's tendency to doubt his or her ability to succeed in college is supported in the literature (Scanlan & Darkenwald, 1984).

CHAPTER 5

CONCLUSIONS, AND RECOMMENDATIONS

Summary

Post-Secondary institutions have been witnessing a steady change in enrollment patterns as student body profiles have been changing. Changing population demographics caused by declining birthrates and increased longevity, advanced technology and societal changes have resulted in the increased enrollment of students over the age of 25 in post-secondary institutions. In addition, changes in leisure patterns and the desire for self-fulfillment have motivated many older adults to enroll in college courses and programs.

For many colleges and universities survival will depend upon the recruitment and retention of the older student. Montana State University--Northern is in a unique position to attract and retain the non-traditional learner. Located in the north-central part of the state the college is the nearest post-secondary institution for many Montana's living along the Hi-Line. The programs offered at MSU/Northern provide opportunities for students to enroll in four-year, two-year and certificate programs. Continuing education opportunities, degrees in technology, and traditional programs are a part of the MSU/Northern course offerings.

Most recently administrators are beginning to acknowledge the need to focus on the adult student as a consumer of post-secondary education in Montana. As admission

counselors and college registrars experience fewer traditional age students seeking admittance to college and more first time applicants over the age of 21; it has become imperative to look at the non-traditional student as an important part of the future of higher education.

Montana State University--Northern has experienced changing enrollment patterns. In 1996 the average age of the freshman student was 23. This number does not include the part-time and non-degree seeking older students who were enrolled in classes. While the average age of the freshmen student is increasing, programs and support services for non-traditional students have been slow in development. One reason for this is the lack of understanding and information about the needs of the non-traditional freshman student. The majority of non-traditional students, though intellectually capable of succeeding and highly motivated are also highly challenged. Non-traditional students are confronted with unique barriers to academic success. An investigation into the nature of these unique barriers and a description of this growing population are beginning steps in the recruitment and retention of the non-traditional student in higher education.

The purpose of this study was to investigate the perceived barriers to educational participation held by non-traditional freshmen students at Montana State University--Northern; and to investigate how the variables of age, gender, marital status, number of children, employment status, income, race, college enrollment status and program of study affect the perception of situational, institutional and dispositional barriers. In addition, this study identified and described four distinct groups of non-traditional freshmen and their perceived barriers. A total of 55 students participated in the study, 38 females and 17 males. The average age of the participants was 35. Eighty-three percent of the participants were Caucasian. The remaining 17% were African American,

American Indian, Asian and "other". Sixty-five percent of the participants were married. Seventy-eight percent had three or less children. The average yearly income was between \$15,000 and \$25,000. Forty-seven percent, or 26 of the participants, were enrolled in college full-time and 53%, or 29 of the participants, were enrolled in a bachelor's degree program.

Data was collected at MSU/Northern during the early part of fall semester 1997. Questionnaires were mailed to the entire population of non-traditional freshmen students enrolled fall 1997. Data were collected from several sources: (a) a demographic questionnaire, (b) a portion of the "Learning Interests and Experiences of Adults Inventory" published by Carp, Peterson & Roelfs (1972), (c) focus group responses, and (d) individual interviews.

The 55 non-traditional freshmen who completed both the demographic questionnaire and the "Learning Interests and Experiences of Adults Inventory" were included in both discriminant and cluster statistical analyses. A focus group with participants from the study was conducted at MSU/Northern during October of 1997. Individual interviews and follow-up telephone calls were conducted during November and December of 1997.

The first phase of the investigation involved a deductive approach to data analyses. The multivariate procedure of discriminant analysis was performed on the data in order to determine if similar groups of non-traditional freshmen could be distinguished based upon their perceived barriers to participation. Discriminant analysis indicated that with the exception of number of children in the three-factor solution and race in the four-factor solution, categories of perceived barriers were not useful in distinguishing similar groups of non-traditional freshmen at Montana State University--Northern.

Using an inductive approach, cluster analysis was initiated to discover if there were clusters of participants who shared common perceptions of barriers. Four distinct cluster groups were identified in this study. Members from each of the groups participated in focus groups and were interviewed.

Profiles of Non-Traditional Students

For the purposes of comparison and analysis the students scores on the "Learning, Interests, and Experiences of Adults Inventory" were transformed into standardized Z scores with a mean of 50 and a standard deviation of 10. A factor analysis conducted using the data from the current sample revealed a four-factor solution. A review of the literature had lent support to Cross's three-factor solution. Exploratory factor analysis with the data from the sample for this study revealed that the instrument consisted of four factors. Therefore, the data were analyzed in terms of both the original three-factor solution as proposed by Cross, and by the four-factor solution indicated by the factor analyses.

In the three-factor solution the range in scores on the Situational scale was between 28.37 and 77.45. Sixty percent of the respondents fell below the mean (50) on this barrier. On the Institutional scale the range in scores was between 32.49 and 68.11 with many of the respondents bunched at the mean (50). On the Dispositional scale the scores ranged from 35.75 to 74.18. Sixty percent of the respondents fell below the mean (50). In the three-factor solution this group exhibited a tendency to attribute barriers to institutional reasons.

In the four-factor solution the range in scores on the Situational scale was 42.16 to 82.82. Almost 69% of the respondents scored below the mean (50) on this scale. As

in the three-factor solution, this was not a strong barrier category for this group. On the Institutional scale the range in scores was 28.47 to 67.01. On the Dispositional scale scores ranged 36.23 to 71.99. On the fourth scale, a combination of Dispositional and Situational the range was between 32.29 and 72.96.

In comparing the three-factor solution with the four-factor solution in both instances respondents scored low on Situational barriers. This group expressed more perceived difficulty in the areas of Institutional and Dispositional barriers in the case of the three-factor solution and Institutional, Dispositional and Situational/Dispositional in the four-factor solution.

Discriminant Analyses

The first discriminant analysis examined if it was possible to discriminate between similar groups of students based upon variables of Situational, Institutional, and Dispositional barriers. The analysis indicated that in only one instance were variables useful in the discriminant function. In the three-factor solution the discriminant function analysis was 75.6% accurate in classifying cases by number of children. The second discriminant analysis examined if it was possible to discriminate between similar groups of students based upon variables of Situational, Institutional, Dispositional, and Dispositional/Situational. This analysis indicated that in only one instance were these variables useful in the discriminant function. In the four-factor solution the discriminant function analyses was 77.3% accurate in classifying cases by race. Unfortunately the sample size was very small and any interpretation of these analyses must keep that in mind.

Cluster Analysis

Cluster Analysis procedures were used to determine if it was possible to identify distinct clusters of non-traditional students based on perceived barriers. This process identified four specific groups. Each group had distinctive characteristics and barriers. Focus groups and interviews were held with members of each cluster to provide additional information in naming and describing the clusters.

Based on the quantitative and qualitative data the groups were named the Seekers, the Challengers, The Explorers, and the Introspectors. Participants were distributed among the four groups as follows: the Seekers--21, the Challengers--10, the Explorers--14, and the Introspectors--10.

The Seekers expressed no barriers to participation in post-secondary education. The majority of this group were already employed and were taking classes for leisure purposes or to upgrade their skills. The Challengers were primarily full-time students for whom all categories of barriers were a problem. They were mostly single, divorced or widowed women with children living below the poverty level. The Explorers were those students who were primarily part-time students. A large number of them were married women with children. The Explorers had problems with institutional barriers that deterred them from full participation. The final group, the Introspectors were entirely Caucasian, 80% female, married with one or two children. This group was enrolled full-time but was undecided about majors. They reported dispositional barriers as being most important in deterring them from education. This group was older than the other three groups and expressed a reoccurring theme of feeling "old and out of place".

Conclusions

1. Institutional and dispositional barriers are perceived as deterrents to participation for non-traditional freshmen at MSU/Northern.

Institutional barriers are those barriers that exclude or discourage certain groups of learners from participation based upon convenience or accessibility of the learning environment. Restrictive institutional policies, lack of appropriate courses, procedural problems, and lack of information are all types of institutional barriers. In both the three-factor and the four-factor analysis, students reported institutional barriers as deterrents to participation. In addition, in both cases students also reported dispositional barriers as contributing to a lack of participation. Dispositional barriers included perceptions that the students held about themselves as learners and about the learning environment.

2. Through discriminant analyses it was determined that is not possible to use perceived barriers to distinguish groups categorized by age, gender, marital status, income, or employment status. However, it was possible to use perceived barriers to distinguish groups categorized by number of children and race.

Situational barriers are a major deterrent for non-traditional freshmen at MSU/Northern having one or two children.

Situational barriers are those barriers that relate to an individual's life context at a particular time, including both the social and physical environment surrounding one's life. Issues revolving around cost and lack of time, lack of transportation, child care, and geographic isolation are examples of situational barriers experienced by many students at MSU--Northern. Students with two or less children are often those students who are just beginning their families. Issues of child care are of great concern for this group. In

addition, younger families often times represent lower socioeconomic status. Students returning to school with one or two children are often doing so out of a need to increase their income. Many of these students are working two and three part-time jobs in order to provide for their families while attending school. Time is an elusive factor in these students' lives. There are never enough hours in the day to meet the demands of school, work and family. Priorities are continually being re-examined in light of new and increasing demands on time and resources. Members of the focus group and interviews with students supported these conclusions.

3. Institutional and situational barriers are major deterrents for non-traditional Freshmen at MSU/Northern who are members of minority groups.

Education is a middle-class construct, designed by the middle class using middle-class language and concepts of achievement motivation. White, middle-class children and adults are socialized to participate in education. Minority groups are often unprepared and unfamiliar with the institutional policies and procedures of colleges and universities. It is not a matter of minority groups being less able, but a matter of higher education being a new and different culture for many minority groups. In some cases minority students enrolling in higher education are the first members of their family to do so; and although families are supportive, there is a lack of understanding of the policies and procedures of higher education. In many instances the minority student is from a lower socioeconomic background and college enrollment is a financial burden. Problems with employment, child care, and transportation are major issues for this group of students who are already pressed for financial resources. Over 40% of the members of

the group who reported a high incidence of institutional and situational barriers to participation were minority students.

4. Credits carried do not effect the number of institutional, situational or dispositional barriers reported by the students.

Through discriminant analyses it was determined that is not possible to use perceived barriers to distinguish groups categorized by number of credits carried.

5. Type of program the student is enrolled in does not effect the number of situational, dispositional and institutional barriers reported by that student.

Through discriminant analyses it was determined that it is not possible to use perceived barriers to distinguish groups categorized by college enrollment status.

6. Distinct groups of non-traditional freshmen students exist at MSU/Northern.

Not all students report the same types of barriers. Within groups of similar students barriers may differ. The identification of four distinct groups of non-traditional freshmen students at MSU/Northern is helpful in beginning to describe this population. This sample was small and therefore limited in the richness of data. However, the students in the present investigation reported barriers that are similar to other findings. The Seekers, who were enrolled in courses who were not degree seeking students report no problems with barriers. These students were attending college in addition to working or were taking courses as a leisure activity. They were not interested in obtaining a degree and therefore the institutional policies were of little limitation to them. They had chosen to enroll and had done so at a time in their lives when situations permitted

enrollment. They were moderately well off financially, and had no apparent deterrents to their participation.

The second group, the Challengers, was highly challenged by situational, dispositional and institutional barriers. These students were juggling home, part-time work and full-time school. This group contained the largest number of minorities. These students were worried about time, money, ability, self-esteem, school policies, grades, classes, transportation, and failing. They were highly challenged and highly challenging.

The third group, the Explorers, was enrolled in school part-time. They sought a degree, but also had other things they must do. Institutional barriers were major deterrents for this group.

The final group, the Introspectors, was not worried about institutional barriers or situational barriers. They were worried about whether or not they could do the work. Issues of age and ability were foremost in this group's mind. They spent a great deal of time reflecting on their own perceptions and on the learning task. They enjoyed learning, but required a great deal of nurturing and mentoring to overcome their initial fears.

7. The use of the Carp, Peterson, and Roelfs questionnaire for this type of study is questionable. The categorization of the items on the questionnaire into three sets of barriers as conceptualized by Cross needs further investigation.

An issue of concern for this investigation was the validity of the Carp, Peterson and Roelfs questionnaire and the further conceptualization of the items from the questionnaire into three distinct categories of barriers: situational, institutional, and dispositional. Although Cross's categorization of the items into these three barrier categories has support in the literature, the current sample did not support a three-factor solution. Instead, a four-factor solution was found to exist for this sample. The small

sample size precludes any definite conclusion other than to suggest that further study is necessary.

Recommendations

Special advising and peer mentoring needs to be made available to non-traditional freshmen with young families at MSU--Northern. Students returning to school with young children have many barriers relating to issues of cost, lack of time, transportation and child care. These students need the support and encouragement of faculty and peer mentors. They need accurate and timely information concerning financial aid, course scheduling, and academic programs. Advisors who are trained to work with non-traditional students would provide this information and support. In addition, peer mentors, upper-classmen that had already successfully completed a year of college would provide encouragement and support to incoming non-traditional freshmen.

Extended hours for registration and academic advising are needed for non-traditional freshmen with young families. Advisors must be available at times when the students are able to come to campus. Many of these students are working full-time and most are employed at least part-time. Quite often these students are unable to meet with advisors during the day. In many cases students register for courses without the benefit of academic advising. Registration is accomplished on lunch breaks or during the last hours of the day before the campus registration office closes. Evening advising hours would provide students with access to much needed academic advising and more focused and effective course registration.

Flexible course scheduling, more evening classes and weekend options must be available for non-traditional freshmen with young families. Many of these students are currently employed full-time and therefore seek enrollment in courses that are offered late in the afternoon, early evening or on weekends. Extending the hours of the school day permits the student to register in more classes, accelerating their forward progress.

Quality, low-cost day-care with extended evening and weekend hours must be provided for non-traditional freshmen with young families. Child care is a major concern for this group of students and is a major deterrent to their participation and enrollment in courses. Extended child care hours would allow these students to enroll in late afternoon, evening and weekend classes, expanding their opportunities for course selection and aiding their forward progress.

Developmental advising and peer-mentoring must be provided for non-traditional freshmen students who are members of minority groups. Many of these students are the first members of their family to enroll in higher education. They are unfamiliar with the policies and procedures of the institution and need peer-mentoring and developmental advising. Role models from minority groups who serve as peer-mentors would provide a source of encouragement and support for these non-traditional students. Developmental advisors would facilitate the student's transition into the institution.

Minority student clubs should be encouraged and supported on campus. Minority students need to support of their peer group. Membership in student clubs provides one source of campus involvement and interaction with peers.

The Director of Multi-Cultural affairs would serve as an advocate for minority students on campus and would promote programs for cultural awareness. The non-traditional minority student needs to feel valued and respected by the institution. The Multi-Cultural Coordinator provides a listening ear for these students and at the same time promotes programs that enhance cultural diversity on campus.

Faculty and staff should receive training in issues related to cultural diversity and be knowledgeable of the different minority groups enrolled at MSU--Northern. An informed and educated institution is one that is best able to understand and meet the needs of the non-traditional minority students. Ongoing workshops and programs relating to minority populations enrolled at the institution increase the campus awareness of minority groups.

Marketing, recruitment and retention efforts should be tailored to specific groups of non-traditional freshmen at MSU--Northern. The recent investigation identified four distinct groups of non-traditional freshmen. The Seekers are those non-traditional students who report no barriers to educational participation. This group needs accurate information about course offerings and scheduling. They will enroll in college and participate as their time and resources allow, taking courses that they find of interest or value. Included in this group are students who enroll for leisure reasons. Marketing, recruiting and retaining these students requires the institution demonstrate value for time and money spent.

The second group, the Challengers, is the most highly challenged, and need help overcoming a variety of barriers. These students don't require sophisticated marketing strategies. They recognize the value in education and enroll in degree seeking programs

to improve their standard of living. Many are women, head of households. The retention of these students depends upon their satisfactory progress, financial resources, transportation and child-care. The institution needs to provide developmental advisors for these students; advisors who understand the issues involving the students return to education. Accurate information concerning programs of study and course selection is imperative. In addition, these students need help with time management, financial planning and goal setting. They require nurturing and encouragement as they develop their academic skills. These students are primarily single mothers and require quality, low cost child care. Advisors for these students must be familiar with campus and community resources, making referrals when necessary.

The third group, the Explorers, is those students who want a degree but have many other things to which they must attend. They are enrolled part-time because of competing demands for their time and money. Institutional barriers present the greatest problems for this group. They need aggressive marketing, accurate advising and continued support and encouragement as they familiarize themselves with the policies and procedures of the institution.

The final group, the Introspectors, is primarily concerned with whether or not they are capable of successfully completing the course work. This group needs to be marketed with an emphasis on life-long learning. They are concerned with issues of age and therefore need to be mentored and nurtured as they overcome their initial fears of being too old to learn. They need support groups and caring advisors who provide developmental and academic advising.

Not all students possess the same deterrents to participation. Situational, dispositional and institutional barriers are broad categories that include a multitude of

diverse barriers. Members of the same peer group may not share the same barriers. To improve the retention of non-traditional students institutions will need to address the diversity of these barriers. Adults facing situational barriers, like the Challengers, need services that will enhance their academic adjustment by allowing them to concentrate on the student role. Adults facing dispositional barriers, as in the case of the Introspectors, need the communication of accurate, timely information, stressing anticipated benefits and realistic expectations. They need counseling and help overcoming negative attitudes and beliefs related to their own self-efficacy and higher education. Explorers, students facing institutional barriers, need flexibility in registration, course scheduling and advising.

The creation of a Re-Entry Student Center to coordinate and facilitate the components of an effective non-traditional student program is essential to the recruitment and retention of non-traditional students. The Re-Entry Student Center would be the place on campus that serves as the hub for the non-traditional student's wheel. The three phases of the non-traditional student's educational career (moving in, moving through, and moving on) each require a response from the institution (Schlossberg, 1989). The moving in phase culminates with filling out an application. Moving through refers to the student's progression through the academic courses. Moving on refers to the student's completing formal schooling and leaving the college. During the moving in phase the student needs the services of a Re-Entry Student Center which would be the place for developmental assistance, assessment, advising and registration. Admissions would work closely with the Re-Entry Student Center to facilitate the non-traditional student's smooth entry into the institution. The center would help the student make the

transformation from a general interest in education to the practical information needed to enroll and register in courses. The center would collaborate with those responsible for new student orientation and provide a specialized orientation for non-traditional students.

In the moving through phase the non-traditional student needs mentoring and peer support. The student needs advisors who are trained to work with older students and who can facilitate the goal setting process that is critical to this moving through phase.

Academic tutoring, developmental courses, career exploration and workshops on study skills and learning how to learn would all be provided during this moving through phase. In many colleges, non-traditional freshmen are required to enroll in a Freshmen Seminar that includes many of the transition issues faced by the new student.

The moving on phase is the time when the student is preparing to graduate. For many non-traditional students this is both a joyous and a painful event. The anticipation of graduation and the fear of the unknown are conflicting emotions that many students need help resolving. Advisors and peer mentors would help the non-traditional student in this transition of moving on to something new. Advisors and peer mentors would provide the support and encouragement during each phase of the non-traditional student's journey.

A panel of non-traditional students, staff, administrators and faculty representatives should be established to discuss the barriers faced by non-traditional students at MSU--Northern. The non-traditional student is not a passing fad in higher education; institutions must address the needs of this rapidly growing group of learners if they expect to attract and retain this population. A collaborative examination of the non-traditional student's concerns would begin with brainstorming and open discussion.

Flexibility will become the key that opens the door to higher education for non-traditional students. MSU--Northern's willingness to provide that key, will determine the ongoing enrollment of non-traditional students at the institution.

Future investigations should include a study of non-traditional students who are not enrolled in a post-secondary institution. By virtue of being enrolled in courses, students in the current study have overcome a certain number of perceived barriers. A study of interest would be one that investigates the perceived barriers of those students who are not enrolled in a post-secondary institution. These students may in fact demonstrate a different set of barriers from those in the current study.

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APPENDIXES

APPENDIX A
LETTER OF INVITATION

October 1, 1997

Re: Student Survey

A study is being conducted with the purpose of improving the services provided to students at MSU/Northern. *We need your help!* Your responses to the enclosed questionnaire will help the administration, faculty, and staff develop more effective ways of addressing the needs of students at Northern. Please take a few moments to complete the questionnaire. Your immediate response to this request will allow time for reviewing the information and implementing possible changes.

A return envelope has been provided for your convenience. You may also drop your sealed responses off to Mavis Filler in Cowan Hall 213 or Joanna Kurtz in Cowan Hall 105. Your responses are confidential and will be reported as group comments with no identifying information attached.

Please take a few minutes now and complete the form and mail it or bring it to one of the above offices. If you have any questions you may contact me at 265-4111.

Thank you for your help.

Sincerely,

Carol Green
Assistant Professor

APPENDIX B
STUDENT SURVEY

		Not a Concern	Minor Concern	Ave. Concern	Major Concern	Overwhelming Concern
14.	Too much red tape in getting enrolled	1	2	3	4	5
15.	Hesitant to seem too ambitious	1	2	3	4	5
16.	My family doesn't like the idea.	1	2	3	4	5
17.	No encouragement from my friends.	1	2	3	4	5
18.	Home responsibilities	1	2	3	4	5
19.	Job responsibilities	1	2	3	4	5
20.	Not enough energy and stamina	1	2	3	4	5
21.	Afraid that I'm too old to begin	1	2	3	4	5
22.	Low grades in the past	1	2	3	4	5
23.	Lack of self confidence	1	2	3	4	5
24.	Don't meet requirements to begin program	1	2	3	4	5
25.	Courses I want don't seem to be available	1	2	3	4	5
26.	Don't enjoy studying	1	2	3	4	5
27.	Tired of going to school	1	2	3	4	5
28.	Don't know how to use computers	1	2	3	4	5
29.	Financial aid applications are confusing	1	2	3	4	5
30.	Afraid I'll fail	1	2	3	4	5

APPENDIX C
STUDENT INFORMATION

For use in interpreting your responses, answers to the following questions are necessary.

1. Gender Female
 Male
2. Age _____
3. Race
 African American
 Caucasian
 American Indian
 Hispanic
 Asian Other
4. Marital status
 Single Head of Household
 Married
 Widowed
 Divorced or separated
5. Number of children _____
Please list ages of children:

6. Approximately what was the combined income of you and your spouse (if married) last year (before taxes)?
 under \$5,000 \$20,000 to \$24,999
 \$5,000 to \$9,999 \$25,000 to \$34,999
 \$10,000 to \$14,999 \$35,000 to \$49,999
 \$15,000 to \$19,999 \$50,000 and over
7. How many hours per week do you work at a paid job?
 not currently employed
 1-19 hours
 20-39 hours
 over 40 hours
8. Please check the status of your current enrollment at MSU/Northern
 full time (enrolled 12 credits or more)
 part time (enrolled less than 12 credits)
9. Please check the type program in which you are currently enrolled:
 a certificate program
 an associate degree program
 a bachelor degree program
 non-degree seeking student (not enrolled in any program of study just taking classes)
 haven't decided on a program of study
10. Housing
 off campus
 on campus

Your social security number: _____ - _____ - _____

APPENDIX D
BARRIER CATEGORIES

Barrier Categories

1. Situational: Cost, including books, learning materials, child care, transportation, as well as tuition
2. Situational: Not enough time
3. Institutional: Amount of time required to complete the program
4. Institutional: No way to get credit for a degree
5. Institutional: Strict attendance requirements
6. Dispositional: Don't know what I'd like to learn or what it would lead to
7. Situational: No place to study or practice
8. Situational: No child care
9. Institutional: Courses I want aren't scheduled when I can attend
10. Dispositional: Don't want to go to school full-time
11. Institutional: Not enough information about what courses are available
12. Institutional: Not enough information about who to contact
13. Situational: No transportation
14. Institutional: Too much red tape in getting enrolled
15. Dispositional: Hesitate to seem too ambitious
16. Situational: My family doesn't like the idea
17. Situational: No encouragement from my friends
18. Situational: Home responsibilities
19. Situational: Job responsibilities
20. Dispositional: Not enough energy and stamina
21. Dispositional: Afraid that I'm too old to begin
22. Dispositional: Low grades in the past
23. Dispositional: Lack of self-confidence
24. Institutional: Don't meet requirements to begin program
25. Institutional: Courses I want don't seem to be available
26. Dispositional: Don't enjoy studying
27. Dispositional: Tired of going to school
28. Dispositional: Don't know how to use computers
29. Institutional: Financial aid applications are confusing
30. Dispositional: Afraid I'll fail

APPENDIX E

ITEM MEANS AND FREQUENCY OF RESPONSES

STUDENT SURVEY
Item Means and Frequency of Responses

	Not a Concern 1	Minor Concern 2	Ave. Concern 3	Major Concern 4	Overwhelming Concern 5
1. Cost (3.67)	3	3	16	20	13
2. Not enough time (2.95)	6	8	28	9	4
3. Amount of time required to complete the program (2.78)	4	16	26	6	3
4. No way to get credit for a degree (2.24)	21	9	18	5	2
5. Strict attendance requirements (2.13)	23	11	15	3	3
6. Not sure what courses I'd like to take (2.04)	25	8	18	3	1
7. No place to study or practice (1.80)	34	4	13	2	2
8. No child care (1.49)	42	6	3	1	3
9. Courses I want aren't scheduled when I can attend (3.27)	11	4	11	17	12
10. Don't want to go to school full-time(1.91)	33	5	9	5	3
11. Not enough information about what courses are available (2.42)	18	10	17	6	4
12. Not enough information about who to contact (2.75)	13	8	20	8	6
13. No transportation (1.38)	44	4	4	3	0
14. Too much red tape in getting enrolled (2.62)	17	10	11	11	6
15. Hesitant to seem too ambitious (1.80)	33	6	12	2	2
16. My family doesn't like the idea (1.33)	46	3	4	1	1
17. No encouragement from my friends (1.31)	46	5	1	2	1
18. Home responsibilities (3.18)	9	5	17	15	9
19. Job responsibilities (2.91)	14	6	12	17	6
20. Not enough energy and stamina (2.55)	11	16	16	11	1
21. Afraid that I'm too old to begin (2.16)	28	7	9	5	6
22. Low grades in the past (2.24)	28	6	6	10	5
23. Lack of self confidence (2.31)	24	9	9	7	6
24. Don't meet requirements to begin (1.67)	37	7	5	4	2
25. Courses I want don't seem to be available (2.67)	17	8	12	12	6
26. Don't enjoy studying (1.93)	26	11	15	2	1
27. Tired of going to school (1.58)	37	11	3	1	3
28. Don't know how to use computers (2.00)	29	8	11	3	4
29. Financial aid applications are confusing (2.73)	19	8	10	5	13
30. Afraid I'll fail (2.73)	19	6	12	7	11

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