The Relationship Between Dropout and Peer Mentoring in an Adult High School Completion Program

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THE RELATIONSHIP BETWEEN DROPOUT AND PEER MENTORING IN AN ADULT HIGH SCHOOL COMPLETION PROGRAM

by

Jo Ann Pastor

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
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THE RELATIONSHIP BETWEEN DROPOUT AND PEER MENTORING IN AN ADULT HIGH SCHOOL COMPLETION PROGRAM

Jo Ann Pastor, Ed.D.
Western Michigan University, 1991

Adult education encompasses a broad spectrum of institutions and activities which share a universal problem of retaining participants. Dropouts from adult high school completion programs are at a particular disadvantage economically. The literature is inconclusive on the causes of or remedies for program attrition. Although mentoring has been promoted and researched as a component of adult development, its use as a dropout prevention strategy for adult high school completion students is not reported in the literature.

An experimental study was conducted to test the relationship between peer mentoring and the dropout rate in an adult high school completion program. The study was conducted in the eight adult high school completion programs in Kalamazoo County, Michigan, with three sites acting as control groups and five sites acting as treatment groups. The data were collected during the second semester of the 1990-91 school year on 142 subjects over the age of 18 who had never been enrolled in an adult high school completion program before the study. The study collected data on attendance, age, gender, ethnic origin, and employment status of the subjects. The study supported the hypothesis that there is a relationship between peer mentoring
and the dropout rate in an adult high school completion program. Chi-square statistical analysis showed a significantly lower dropout rate in the treatment group which received peer mentoring. The study did not support a relationship between dropout and age, gender, or employment status. The study supported a relationship between dropout and ethnic origin for the sample population, but not for the treatment group, with non-Whites having a significantly higher dropout rate than Whites.
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The relationship between dropout and peer mentoring in an adult high school completion program

Pastor, Jo Ann, Ed.D.
Western Michigan University, 1991

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ACKNOWLEDGMENTS

The saying that "no man is an island" is an appropriate one for doctoral candidates because the completion of a dissertation is truly not the act of a single individual. A successful dissertation requires the cooperation and support of many individuals within the institution and from one's personal and professional life. This project is dedicated to the many, known and unknown, who contributed to its fruition.

At the core of the experience is the Dissertation Committee, who patiently guide the novice through the maze and mystery of the doctoral process. Dr. Stanley Olson is recognized for his unfailing optimism and frequent affirmations of my ability to triumph. Dr. Larry Schlack is recognized for his practical advice and honest perspectives on the bureaucratic processes. Dr. David Cowden is recognized as an unofficial member who graciously gave advice on the research design. Finally, Dr. Charles Warfield is recognized for his perpetual encouragement and genuine concern for me as an individual student.

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A dissertation is not merely an academic pursuit, but an emotional one as well. To my family and friends who demonstrated their loyalty and love in many different ways, I extend sincere gratitude for their courtesy, patience, and humor. Special recognition is extended to Laura Pastor Visser for her sensitivity to the stress inherent in the process and her willingness to listen to the endless saga of my doctoral journey. Finally and most importantly, for my sons, Dennis John and Adam Michael, and my husband, Dennis, there are no words adequate to express my gratitude for their unwavering love, moral support, and patience with the deprivations they
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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Statement of the Problem

Adult education encompasses a broad spectrum of institutions and activities including adult basic education (ABE), literacy, general education development (GED), high school completion (HSC), vocational-technical training, military, cooperative extension, postsecondary continuing education, and human resources development within business and industry. The problem of recruiting and retaining participants is a universal one. As the population in the United States ages and the number of youth entering the work force declines, the need for continued education and training or retraining becomes greater. This need is exacerbated by the rising growth in global competition for world markets from countries which are able to provide a better trained and more productive work force at a more competitive cost.

Leonard, Rachal, and Jackson (1986) cited 1983 census data showing 45 million adults over the age of 18 (27% of the population) with less than a high school diploma and only 2.1 million adults enrolled in adult basic education, GED preparation, high school completion, or literacy programs for a 4.6% participation rate. The overall high school dropout rate is quoted as 28%. In Michigan, the number of ninth graders who actually graduated from high school
decreased from 77% in 1973 to 74% in 1985 (Hodgkinson, 1987). In the Kalamazoo-St. Joseph service delivery area, 21.1% of the population over age 16 are high school dropouts and of these 29.4% are considered economically disadvantaged (Michigan Employment Security Commission, Bureau of Research and Statistics Labor Market Analysis, 1990). Minorities and women who drop out suffer from a disproportionately higher percentage, 38% and 30.6%, respectively, of economic hardship according to these data.

"Dropouts are at an ever-increasing disadvantage" (Smith, 1984, p. 41). According to Diekhoff and Diekhoff (1984), the functionally illiterate earn less, have higher rates of unemployment, and are responsible for greater welfare costs. Diekhoff and Diekhoff claimed that only 4% of the functionally illiterate are enrolled in literacy programs per year. Among the problems caused by dropouts within a program, Hurkamp (1969) cited a lowering of morale, cancellation of classes because of insufficient enrollment, loss of state aid, and future dropouts holding seats in classes which have reached capacity thereby preventing a potential completer from enrolling.

Past experience has shown that the dropout rate in adult education programs has remained in the 50% range despite a variety of efforts by adult educators. "Participation in adult basic and secondary education programs, it hardly needs to be said, is not only a matter of attraction of students, but also one of retention of them" (Leonard et al., 1986, p. 5). Diekhoff and Diekhoff (1984) reported attrition rates of 40% to 60% in literacy and other ABE programs. "In fact, attrition has been labeled 'one of the severest problems
confronting adult education" (Diekhoff & Diekhoff, 1984, p. 35). In opposition, Mezirow, Darkenwald, and Knox (1975) gave reference to the "mythical 50% dropout rate established by conventional wisdom" (p. 13). Boshier (1972) cited an average attendance of 50% to 60% in New Zealand continuing education programs. Verner and Davis (1964) compiled a review of 30 research studies involving completion and dropouts in various adult education settings that focused on a variety of personal and situational factors. No definitive conclusion on the percentages and causes of dropping out were reported.

Effective April 1, 1987, all districts in Michigan receiving state funds for adult education programs must comply with state legislation requiring an adult education plan that includes retention, follow-up, and evaluation components. One impetus behind the legislation was the high dropout rate in adult education programs. As further evidence that the adult dropout rate concerns the state, the 1988 School Aid Act introduced funding penalties of up to 10% for attendance and incentives of 10% for program completion.

Directors of adult education programs have been very creative and persistent in efforts to improve the retention rate of their programs, but the results have not changed the dropout rate significantly. One major method has been through direct mail and telephone contacts; however, Stetson (1984) found no statistical correlation between this method and the rate of return of dropouts. Another method used successfully has been career counseling. Champagne (1987) found a positive impact on educationally disadvantaged adult learners, but her study did not directly address the dropout
problem, only program effectiveness. Demographic variables have also not provided a clear understanding of the dropout problem (Bova, 1985; Cervantes, 1965; Diekhoff & Diekhoff, 1984; Holt, 1984; Mitzell, 1982; Pastor, 1989; Sainty, 1971). Research is thus needed to determine effective methods of reducing the dropout rate in adult education programs. Mentoring may be just such an effective method based upon research in business and industry and in education.

Since Odysseus first gave his son Telemachus to Mentor in Greece 3,500 years ago, mentoring has been an accepted means of personal and professional development of individuals. Mentoring has been used in the business world and the teaching profession with some degree of success. Mentoring "typically means that a wiser, more learned person provides role-modeling, instruction, direction, and motivation to help less experienced protegés benefit from the mentor's greater expertise, including political and socialization experiences" (Gray, 1985, p. 237).

Mentoring has been promoted and researched as a component of adult development, but the primary emphasis has been in the business world and the teaching profession (Merriam, 1983). Mentoring projects for gifted and talented students and postsecondary students have been published frequently (Gray & Gray, 1986), whereas those for adult students at the secondary level have not been as well documented. "Some form of mentoring may also be an important vehicle by which adults learn in our society" (Merriam, 1983, p. 161). Although no adequate studies on the effectiveness of mentoring have been reported according to Merriam (1983), Oestereicher's (1985)
assertion that mentoring unites academic integration with the institution and social integration with peers is congruent with Bova's (1985) findings and recommendations. Mentoring provides both a holistic and individualized approach to learning (Bova & Phillips, 1984).

Research is needed to determine if a peer mentoring program would be an effective deterrent to the dropout rate in adult education. "If research shows that having a mentor or being a mentor is as crucial to success (however defined) as some have said, then it behooves educators to incorporate the mentoring relationship into planned interventions with adult clienteles" (Merriam, 1983, p. 161). A review of the literature shows that research has not addressed this specific relationship. Both Boshier and Miller (cited in Mitzell, 1982) called for more experimental research on the dropout problem in adult education as opposed to ex post facto research. Merriam (1983) concluded that the mentor concept needs clarification through more research and evaluation. Experimental field research could be used to plan strategies to reduce the dropout rate in adult education high school completion programs.

The question addressed in this study was whether or not a peer mentoring program would have a significant impact on the dropout rate in secondary adult education programs. Because the factors affecting the dropout rate are complex, the scope of this study was limited to the relationship between a mentoring program and the dropout rate.
This research study sought to illuminate different areas of knowledge and to generate implications for new issues or problems relative to the adult education dropout phenomenon, thus satisfying Courtney's (1986) requirements for a research question. Rachal (1986) put forth three criteria for a research question:

1. It has practical application.
2. It contributes to the understanding of the field.
3. It has universality; that is, it provides implications beyond the study.

The research study as outlined in Chapter III appears to fulfill these criteria as supported by the review of the literature in the next chapter.

Significance

Directors of adult education programs have been frustrated by the high dropout rate in their programs and have been hampered by budget and time constraints from addressing the problem effectively. Methods for predicting potential dropouts are costly because most require additional personnel, have time consuming screening processes, and can actually cause the dropout of students through intimidation and the appearance of irrelevance. In addition, these prediction methods imply the implementation of intervention strategies which require additional support services for students.

Peer mentoring could be one of these support services. If shown to be effective in reducing the dropout rate, it poses several advantages over other support systems. It is relatively easy to
develop and to administer. It does not add to staffing or budget needs significantly. It provides opportunity to utilize the available resources, currently enrolled students who can relate to new students empathetically. It would enhance student body interrelationships and provide a sense of contributing to the program and to society thereby improving self-esteem. Finally, it is feasible in any size district; large districts could assign peer mentors only to high-risk students if it were not possible to accommodate every new student.

The results of this research study will add data to dropout research. Although considerable research has been conducted in the area of identification and classification of potential dropouts which contributes to the theory of this subject, concrete intervention strategies have remained nebulous. Directors of adult education programs have tried various means to reduce the dropout rate, but little has been done through formal research procedures or has been reported in the literature. This study addressed the gap between theory and application.

Operational Definition of Variables

Adult Education

For the purposes of this study, adult education is defined as an adult high school completion program. An adult high school completion program is defined as one that offers courses leading to a high school diploma but is separate from the regular K-12 program.
In Michigan, courses must be 60 hours in length for a half credit as measured in Carnegie units. The typical semester is 17 weeks in length with classes meeting once a week for approximately 3.5 hours during the day or evening or twice a week for 1.75 hours during the day. A few districts use 15-week or 18-week semesters with the 60 hours distributed accordingly. The typical school year has two semesters between September and June. An adult is defined as any student 18 years of age or older who is not a student in a regular K-12 program.

**Dropout**

A dropout is defined as anyone who enrolls in an adult high school completion program and attends once in the first 3 weeks of the semester and who fails to attend during each of the last 3 weeks of the first 8-week period of the semester. All reasons for dropping out were included in the data analysis except for death of the student or a student move outside the original school district boundaries in which the adult education program is operated.

**Persister**

A persister is defined as any student enrolled and in attendance once in the first 3 weeks of the semester and also in attendance at least once during the last 3 weeks of the first 8-week period of the semester with an excused absence for any absences during the last 3 weeks of the study period. An excused absence is defined as that recorded as excused on the official attendance
reports of the program. The first 8 weeks of the semester were selected based upon an analysis of dropout data (Pastor, 1989) which showed that 87% of adult students who drop out from an adult education program do so within the first half of the semester.

**Peer Mentor**

A peer mentor is defined as a student who has successfully completed at least one semester in an adult high school completion program and who is enrolled for the semester of the study. A potential peer mentor has demonstrated a positive attitude toward education by regular attendance and average or above average grades. A peer mentor is one who guides a fellow student in his or her work and who serves as role model and an intermediary between the institution and the new student. The mentor helps transmit relevant skills as well as values. Basic training was provided to peer mentors to explain their role and functions in the study.

**Research Objectives**

As has been suggested above, the dropout phenomenon in adult education in general and in adult high school completion programs in particular is a persistent problem. It is a problem that may be related to the lack of a positive role model and/or integration with the institution. Mentoring has been an accepted means of providing a role model as well as social integration into the institution or organization. It is the interaction between these variables which is significant. For the purposes of this study, the dropout rate
was the dependent variable and peer mentoring was the independent variable.

The research design of this study was intended to analyze the possible relationship between the dropout rate in an adult high school completion program and peer mentoring. That is, does dropout in adult high school completion vary significantly between students who have an assigned peer mentor and those who do not? Also, if a relationship does exist between the dropout rate in an adult high school completion and peer mentoring, does the relationship vary by sex, age, ethnic origin, or employment status?

Organization of the Study

Chapter I presents an introduction to the study, the statement of the problem and its significance, the operational definitions of the key variables, and the organization of the study.

Chapter II is a selective review of the literature as it pertains to the variables of dropout in adult education and mentoring.

Chapter III contains the operational hypotheses and the methods and techniques used to conduct the experimental study, collect and analyze the data, and report the results. Included in this chapter is a discussion of the research design, the population used, problems with internal and external validity, and limitations of the design.

The analysis of the data and the testing of the operational hypotheses is presented in Chapter IV.
Conclusions about the purposes of the study as related to the results of the tested hypotheses are contained in Chapter V along with recommendations for future research.
CHAPTER II

REVIEW OF THE LITERATURE

Introduction

A review of the literature on dropout in adult education and mentoring revealed a disparity in the quantity and quality of research in these two areas. The phenomenon of dropout has been well researched using a variety of conceptual foundations as well as statistical techniques. The concept of mentoring has not been subjected to as much formal research as has dropping out. Research correlating the two has been minimal. The review of the literature is divided into research on dropout in adult education, mentoring, and interactions between the two.

The literature review was intended to analyze the possible relationship between the dropout rate in an adult high school completion program and peer mentoring. That is, does dropout in adult high school completion vary significantly between students who have an assigned peer mentor and those who do not? Also, if a relationship does exist between the dropout rate in an adult high school completion program and peer mentoring, does the relationship vary by sex, age, ethnic origin, and employment status?
Because the proposed study draws upon research in education, psychology, and organizational management, it is necessary to discuss the conceptual framework of the major underlying premises of the study. Although the literature review focuses upon the dropout and mentoring concepts, many of the studies discussed draw upon theoretical frameworks from psychology, social systems models, and management philosophy. Three broad major conceptual frameworks were evident in the literature review: psychological bases for dropout theory, sociological bases for dropout theory, and mentoring as an elusive theoretical concept. The conceptual framework appears at the beginning of each of the appropriate individual subsections of the literature review.

**Introduction**

"It is obvious that every dropout, as every graduate, is an individual with unique characteristics, problems, and personal history. No single category will pinpoint all dropouts no more than any single solution will be a universal answer" (Cervantes, 1965, p. 198). Research into the causes and prevention of dropout in adult education has focused on psychological and sociological motivations for participation; personal, social, and institutional barriers to participation; demographic variables related to dropouts; and the prediction of dropouts in adult education. Verner and Davis
(1964) found 30 dropout studies conducted between 1928 and 1964 which were mostly descriptive and which produced no major consistent results. More recently, Boshier (1971b, 1972, 1973, 1977), Garrison (1987, 1988), and Darkenwald and Gavin (1987), among others, have applied more sophisticated statistical techniques to the study of dropout in adult education. Research studies on dropout in adult education can be categorized according to the variables and/or themes studied: demographic, institutional, psychological, and psychosociological. Although the literature review on dropout in adult education follows these categories, there is some overlapping between and among the variables and themes.

**Demographic Variables Related to Dropout**

Studies involving demographic variables related to dropout include those related to patterns of enrollment, characteristics of high school dropouts, interrelationships to barriers, and prediction of dropouts. No consistent pattern of demographic variables emerges; instead, demographic research results appear to be situationally bound to the particular sample population which limits generalizability of the results.

Holt (1984) studied the participation patterns of prisoners enrolled in adult education programs during incarceration. Of 1,196 prisoners, 42% participated in education; at the end of 4 months, 33% had completed, 30% were still enrolled, and 37% had withdrawn. Participants were more likely to be younger, minority, and have a less extensive criminal history than the general prison population.
There were no significant demographic differences between dropouts andpersisters. Mitzell's (1982) survey of the literature reportedthat the motives for adult participation vary by sex, age, occupa-
tion, and life stage.

The phenomenon of the high school dropout has been researchedextensively since the 1960s. The reasons for dropping out have beenanalyzed and categorized and recommendations for recognizing poten-
tial dropouts and for prevention programs have been well develop-
ed (Rhodes, Boswell, Kaplan, & Whitaker, 1971; Schrieber, 1967).
Cervantes (1965) developed 20 characteristics to predict potential
high school dropouts based upon school performance, family vari-
bles, peer environment, and results of the Thematic Apperception
Test (TAT). Performing below grade level, failing one or more
school years, attending irregularly, not participating in extracur-
ricular activities, changing schools frequently, and feelings of
"not belonging" comprise major school performance indicators of
potential high school dropouts. These findings correlate to those

Diekhoff and Diekhoff (1984) outlined the standard approaches
to studying the attrition problem as the collection of data on the
reasons for dropping out which are self-reported and nonpredictive,
tests results for personality or cognitive variables which require
reading ability, data on demographic variables which provide incon-
sistent results, and the use of congruence models. In their study
of adult literacy participants, they found that persistence was
greater with older students and for students whose goal was to
obtain a GED, that the unemployed and those unavailable for work persisted more than the employed, that whites persisted more often than minorities, and that the presence of other illiterate family members increased attrition.

Bova (1985), using Boshier's Education Participation Scale on 157 adult basic education students from 16 to 62 years old, found that participation varied by age but not by sex. Leonard et al. (1986) looked at personality factors, demographic and academic variables, and information from students on their reasons for persistence or attrition in their study of 111 GED participants. Dropouts tended to be black, female, an average age of 29.3, with 9.5 years of schooling; persisters tended to be black, female, an average age of 31.4, with 9.4 years of schooling. Dropouts emphasized situational barriers such as trouble getting to class followed by institutional barriers such as needing more individual attention. These findings are consistent with those of Russ-Eft and McLaughlin (1981), whose research reported that adult dropouts tend to be younger, black, female, and with less than an 11th grade education. They also reported that rural, low income, and residence in a southern state are significant variables in dropout from adult basic education. Cramer (1982) found no significant differences between rural and urban adult basic education populations in demographic variables, reasons for participating, and barriers to persisting.

Sainty (1971) took a multifaceted approach to predicting dropouts from adult education courses. Using the Terman-McNemar Test of Mental Ability for intelligence, the Gates Reading Survey for
reading ability, the Q Tags Test of Personality, and biographical data for 104 male vocational-technical students, 57 of whom dropped out, Sainty found age, the number of grades completed, occupational status, and the number of jobs held in the past year to be the highest predictive variables of dropout. Dropouts tended to be younger, to have repeated more grades, to hold a lower status occupation, and to have held more jobs in the past year than persisters. These findings are consistent with previously cited studies.

Demographic variables do not appear to be strong predictors of dropout from adult education. Individual studies have been flawed by sampling techniques and the inability to produce consistent results across a variety of adult education settings. Only general tendencies emerge which suggest institutional approaches to reducing the dropout rate in adult education settings.

Institutional Themes Related to Dropout

The barriers to participation in adult education have been thoroughly researched (Boshier, 1973, 1977; Charner & Fraser, 1986; Cross, 1981; Darkenwald & Valentine, 1985). These barriers have been divided into situational, social-psychological or dispositional, and structural or organizational categories. Critical elements in the realm of socioenvironmental factors and individual expectations (Beaudin, 1982) have been identified.

Scanlan and Darkenwald (1984) claimed that identifying the deterrents to participation is more useful than motivation factors. They outlined four categories of barriers: situational,
dispositional, institutional, and informational. These barriers correspond to ones found in national surveys which list cost, lack of time, inconvenient scheduling, lack of information, job and home responsibilities, lack of interest, and lack of confidence as reasons for not participating in continuing education. The results of Scanlan and Darkenwald's study of the health profession are not generalizable to the adult education population at the secondary level.

Since prior research focused on what prompts participation or classification of barriers to participation, Darkenwald and Valentine (1985) attempted to develop a Deterrents to Participation Scale in order to identify deterring factors and to determine relationships between these factors and sociodemographic variables. Time constraints were of the highest importance, followed by lack of course relevance, then cost, with lack of confidence of lowest importance. Personal problems and low personal priority factors showed mixed results. The instrument is intended to be used as a program planning tool and for market analysis to increase participation.

Houle (1964) summarized research findings on the reasons for dropping out as accomplishment of goal before the end of the course, low basic skills, personal problems, dissatisfaction with the instruction, and dissatisfaction with administrative policies and procedures. Houle hypothesized that adults, including dropouts, just do not know how to learn. Based upon a survey of 1,200 university, adult education, YMCA, and university correspondence students,
he concluded that learning how to learn should be part of the curriculum in adult education programs.

In other studies of institutional variables, Sullivan (1984) hypothesized that classes taught by trained adult education teachers would have lower dropout rates. Using multiple regression on the variables of adult education training, teacher training, general qualifications, years of experience both in working and in teaching, and age on a sample of 60 adult education teachers in England, Sullivan found no statistical difference in the dropout rates. Sullivan concluded that personal circumstances and characteristics of students are the cause of dropping out. In another study of adult students in England, Roberts and Webb (1979) found no relationship between dropping out and class size; however, dropout rates were highest in Monday classes and in academic classes in their study of 395 Yorkshire students enrolled in four colleges of further education.

In Pelzar's (1986) study of the relationship between dropout and the application of behavioristic principles, students in a Dade County, Florida, adult education program who were subjected to the principles of operant reinforcement through social facilitation (group work), to schedules of reinforcement (tests every 3 weeks), and to principles of extinction to reduce test taking anxiety (a combination of breathing exercises and multiple choice answers), showed a significant improvement (15%) in the dropout rate over the previous year. Pelzar advised adult education providers to promote group work, staff training, and test taking strategies as a means of
improving the retention rate of adult students.

According to Beaudin (1982), the factors affecting dropouts in adult education have not been identified. The research only suggests broad generalizations for retention which are congruent with Knowles's (1984) andragogical theory of adult learning and which Beaudin summarizes as follows: (a) address real needs, (b) create supportive environment, (c) minimize problems and barriers, and (d) accurately communicate expectations and problem areas. Based upon a survey of attitudes of dropouts and persisters in a New England adult education program, Hurkamp (1969) recommended more informative literature and publicity, improved orientation programs, reliable predictive instruments for dropouts, early counseling for potential dropouts, and changing the physical conditions of the program.

Psychological Bases for Dropout Theory

Motivation for participation in adult education has formed the basis for much of the theoretical foundations of the dropout concept. Houle (1964) categorized participants in adult education as being goal oriented, activity oriented, and learning oriented. Knowles's (1984) andragogical theory postulates that adults are self-directed learners who must see relevancy to their personal needs in their learning environment. Both approaches can be correlated to Maslow's Hierarchy of Needs and to theories of adult development (Merriam, 1984).

Boshier (1971a, 1971b, 1972, 1973, 1977) developed the most comprehensive theory of adult education participation which he
extended to the concept of dropout. Using Rogers's self-concept theory and Maslow's Hierarchy of Needs, Boshier constructed his congruence model and an instrument, the Educational Participation Scale (EPS), for the prediction of dropouts from adult education. Boshier (1973) viewed dropout as a multivariate phenomenon with no satisfactory theory of social and educational participation to support it. He believed that dropout is an extension of nonparticipation because both stem from "an interaction of internal psychological and external environmental variables" (Boshier, 1973, p. 256). Individuals may be classified according to two internal psychological determinants: growth motivated— one who is motivated internally and is open to new experiences; and deficiency motivated— one who is motivated by social and environmental pressures and seeks basic needs gratification. No one person is entirely growth or deficiency motivated. Boshier (1973) related both of these motivations to Maslow and Rogers. According to Boshier, participants are concerned with maintaining inner harmony and harmony with the environment; congruence between the two produces satisfaction or fulfillment. When people enroll in adult education for deficiency reasons, self/other incongruence which stems from intra-self incongruence results. The outcome is dissatisfaction with the educational environment. There are mediating variables, both course-related and non-course-related, which usually interact. Dropout occurs when feelings of incongruence are triggered by mediating variables (Boshier, 1977). Boshier (1971b) advocated manipulating institutional characteristics to improve participant satisfaction.
MacLean (1987) viewed Boshier's dichotomy of growth versus deficiency orientation as one of the former seeking heterostasis and the latter seeking homeostasis with the growth motivated individual more likely to persist in adult education. He criticized Boshier's Personality and Educational Environment Scale (PEES) for not having demonstrated construct validity nor predictive ability. Both Rubenson (1982) and Cookson (1986) opposed the use of psychological reductionism which appears to be present in much of the research on adult education participation, including Boshier's congruence model. Garrison (1987) also argued that reducing the interactions between the self and the environment into a psychological variable is too simplistic an approach to explain a complex phenomenon. According to Rubenson (1982), when motivation is conceptualized through psychological constructs, psychic processes related to concrete situations are neglected. Cookson advocated that adult education research draw upon concepts from numerous other fields since adult education participation can be seen as part of a broader pattern of social participation.

Psychological Variables Related to Dropout

"The dropout is no longer a boon to the national economy. He is clumsily dysfunctional in the computer-precise, machine-oriented, communication-saturated society" (Cervantes, 1965, p. 196). Cervantes (1965) compared a matched sample of high school persisters with high school dropouts using questionnaires and interviews as well as the Thematic Apperception Test (TAT). TAT results indicated
a resentment of authority, a weak pattern of deferred gratification, and a weak self-image in dropouts. Smith (1984) found similar trends in a case study of 17- to 21-year-olds registered in a community college high school completion program. While this sample did not fit the disadvantaged, low skill stereotype of dropouts, they did repeat their previous pattern of irregular attendance, passivity, and lack of persistence.

Martin (1984) also used the interview technique on 79 adult basic education and GED students to develop a typology of psychosocial development. The major influences experienced by this group on their developmental patterns were deviance from socially acceptable norms, self-esteem, setting and achieving goals, and literacy and social awareness. Subjects were classified into four categories based upon their ability to cope with these developmental influences. Entrepreneurs were successful, high achieving adults who were satisfied with their life patterns and optimistic about the future. Regulars tended to be regularly employed in blue collar positions with good self-esteem who had adequate literacy skills but experienced some difficulty with goal setting. Marginals were those labeled as social deviants, usually with low literacy levels and lower socioeconomic status, who still aspired to the values of dominant culture but had major difficulty with goal setting. The underclass completely rejected the values and goals of the mainstream culture but possessed adequate literacy and goal setting skills which were often used in deviant or antisocial activities. The implication of these findings for practitioners is in the need to
alter the focus of adult basic education programs to increase understanding of and commitment to the dominant culture, to teach self-control and goal setting processes, and to lessen the reliance on the print media for information.

Using Gough's Adjective Checklist on 142 adults enrolled in a community college GED program, Wilson (1980) found that persisters were higher in self-control, endurance, and deference, while dropouts were higher in unfavorable adjectives checked, especially in the categories of autonomy, change, and succorance. Wilson concluded that dropouts "may desire more supportive and dependent relationships than persisters" (p. 183).

The concept of internal versus external motivation or orientation has been the focus of several studies. Taylor and Boss (1985) hypothesized that completers were more internally controlled than dropouts. In their sample of 62 adult basic education students who were given Valecha's Rotter I-E Scale, their hypothesis was supported by two-way analysis of variance and they recommended shifting students to more internal behaviors. In an earlier study of 134 adult high school completion students between 18 and 55 years old, Londoner (1972) found that persisters were more externally oriented and dropouts were more internally oriented. Londoner asserted that participation models rest on needs-social system-satisfaction theory; therefore, it can be assumed that adult education needs are triggered by external requirements of work and/or social roles and that these aroused needs are transformed into educational goals.
Donnarumma, Cox, and Beder (1980) predicted that field independent adults would score higher on the Test of Adult Basic Education (TABE) and would complete the GED while field dependent adults would have a higher dropout rate. The construct field dependence-independence "refers to use of internal or external referents as primary guides in processing information" (Donnarumma et al., 1980, p. 222), with those being field dependent relying on external cues and those being field independent relying on internal cues. The construct is not related to intelligence, social class, or race. The hypotheses were supported in their study of 40 participants in a Comprehensive Employment Training Administration (CETA) program ranging in age from 17 to 30 years old.

Predicting the potential adult dropout from studies of high school dropouts (Rhodes et al., 1971; Schrieber, 1967) is of little relevancy to the adult education population which has acquired adult behaviors, motivations, and problems. One of the more relevant studies for predicting dropouts in adult basic education (Garrison, 1985) reported that adult basic education dropouts had lower scholastic ability scores, experienced more socioeconomic changes, and had higher ideal self scores than persisters which is consistent with research on high school dropouts. This study also showed that dropouts thought that their courses were more relevant and their goals were clearer than persisters. The former finding is contradictory to Knowles's (1984) theory of andragogy, which stresses relevancy as a requisite for adult participation. The latter finding also poses an anomaly which upon further research by Garrison
(1985) was resolved by clarifying that although the goals of the dropout were clearer, they were unrealistic as related to the individual's abilities or time parameters. Garrison's final analysis included the importance of counseling students about the expectations of the program and providing realistic goals congruent to the student's ability and time parameters.

Sociological Bases for Dropout Theory

To Rubenson (1982), the understanding of a complex problem requires the conjunction of a variety of theories. For a theory of participation, Rubenson posited the need to include adult education as a societal process, the individual's psychological conceptual apparatus, and links between these two levels. Claiming that most research is concerned with natural phenomena but that education is man-made, Rubenson stated that "one of the consequences of regarding adult education as man-made is that we cannot look for general theories comparable to those in the natural sciences, but only search for theories which explain situationally-bound regularities determined by the social context" (p. 65).

Cookson (1986) based his work on the theory of adult education participation upon Smith's interdisciplinary, sequential-specificity, time-allocation, life-span (ISSTAL) model. He posited six classes of independent variables: (1) external contextual factors which are mediated by personal variables; (2) social background and social role factors which include five social demographic characteristics; (3) personality and intellectual capacity factors;
(4) attitudinal dispositions which include values, attitudes, expectations, and intentions; (5) retained information which includes images, beliefs, knowledge, and plans; and (6) situational variables which exert the most immediate effect on adult education participation. Cookson purported this model to be significant because it conceptually integrates disparate theories and research findings, it highlights the importance of adult education participation's relationship to other behavior and factors, and it suggests ways to increase participation.

Garrison (1985) at first rejected dropout as an extension of adult education participation claiming: "There is little empirical evidence to support a conceptual link between participation and dropout" (p. 25). He proposed three prerequisites for a valid dropout theory: (1) treat it as a phenomenon separate from participation, (2) recognize multiple forms of dropout, and (3) use a holistic perspective of the adult learner. He based this position on Buckley's social systems model which gives equal emphasis to both the learner and the environment. Later, Garrison (1988) reversed this position to view dropout as an aspect of participation theory based upon a general systems theory, mostly from von Bertalanffy, along with a morphogenetic social system model. This approach combines characteristics of organismic and mechanistic philosophic models. He compacted Cookson's (1986) six classes of variables into three: (1) motivations, both intrinsic and extrinsic; (2) capabilities; and (3) constraints, both intrinsic and extrinsic.
Darkenwald and Gavin (1987) also used social environment theory to predict dropout which assumes behavior is reciprocally produced and jointly influenced by individuals and the environment, especially in classrooms. Sullivan (1984) used human capital theory to support his research, defining it as "not the value of people; it is the present value of the skills, knowledge and experience with which past investment in education/training has endowed people" (p. 184). Sullivan also discussed expectancy-valence theory as being useful in adult education research.

Psychosociological Variables Related to Dropout

Bridging the themes of psychological and sociological variables, Darkenwald and Gavin (1987) used social environment theory to predict dropouts from GED classes. This theory assumes that behavior is reciprocally produced and jointly influenced by individuals and the environment, especially in classrooms. Their review of the literature showed inconclusive or contradictory findings on dropout prediction but classroom environment and social cohesion were common variables. Using the Classroom Environment Scale (CES) from Moos and Tricket, Darkenwald and Gavin hypothesized that dropouts would have a greater discrepancy between initial expectations and actual experiences of the classroom. Form E of the CES measures nine dimensions: involvement, affiliation, teacher support, task orientation, competition, order and organization, rule clarity, teacher control, and innovation. Form A was administered as the posttest. Only affiliation was statistically significant for dropouts and rule
clarity for persisters, thus contradicting the hypothesis of discrepancies only for dropouts. The study was based upon a small sample not randomly selected with attrition between the pre- and posttests.

Boshier (1971a, 1971b, 1972, 1973, 1977) has conducted the most comprehensive research on participation and dropout in adult education. Boshier (1971b) surveyed 233 adult education participants from a population of 2,436 students in New Zealand continuing education programs using the Education Participation Scale (EPS). The 48 items were factor analyzed and rotated orthogonally and obliquely according to the varimax procedure. He found 14 first order factors: 6 socially oriented, 2 job or vocationally oriented, 4 specifically learning or education oriented, and 2 minor factors. Citing Houle's Typology theory and Maslow's Hierarchy of Needs, Boshier concluded that "all participants are 'goal oriented,' even though in some the goal is subtle and difficult to detect" (p. 22). Based upon the results of the EPS survey, participants can be classified as deficiency motivated, those seeking a state of homeostasis, or growth motivated, those seeking a state of heterostasis. It is therefore critical that adult education programs are congruent with the dominant needs of the adult participant.

Boshier and Collins (1985) later generated norms for the EPS using data from 54 independent studies involving 13,442 cases to empirically test Houle's Typology. Boshier (1971a) also developed the Personality and Education Environment Scale (PEES) to extend his research. Using Roger's self-concept theory as a theoretical...
foundation and a semantic differential scale (PEES) to rate lecturers, Boshier concluded that "dropouts are defensive in telling the real truth about why they dropped out and are likely to highlight a non-course reason when course reasons are actually involved" (p. 17).

Continuing this vein of research, Boshier (1972) developed the Dropout Prediction Scale (DPS) to overcome the problems of the PEES which required high speed computers to analyze data. The DPS is a 23-item Likert scale adjective checklist. Defining dropout as a function of the interaction between the student and the environment, Boshier found that dropouts were more negative than persisters and recommended that persons who scored low on the DPS be counseled into persistence. Although no specific methods are proposed, the statement that "even the dropout rate itself is an institutional variable influencing dropout" (Boshier, 1972, p. 88) is significant for administrators of adult education programs.

Drawing upon the results of this research, Boshier (1973) proposed his Congruence Model to explain educational participation and dropout. Asserting that dropout is a multivariate phenomenon and an extension of nonparticipation and that no satisfactory theory of social and education participation exists, Boshier posited that both participation and dropout stem from "an interaction of internal psychological and external environmental variables" (p. 256); therefore, participation and nonparticipation are determined by congruence within the participant and between the participant and the education environment. Among the internal psychological
determinants are growth motivated participants who are autonomous and open to new experiences and deficiency motivated participants who are subject to social and environmental pressures and basic need gratification. No one participant is entirely motivated by growth or deficiency factors, instead they are opposite ends of a single continuum which is "a psychological dimension which underlies reasons for participation" (Boshier, 1977, p. 93). When participants enroll for deficiency reasons, it leads to self/other incongruence which stems from intra-self incongruence. The end result is dissatisfaction with the educational environment and dropout occurs when feelings of incongruence are triggered by mediating variables.

Boshier (1973) equated Maslow's deficiency motivation to intra-self (self/ideal) incongruence and saw Maslow's growth person as the same as Roger's fully functioning person. Using the data from previous studies, Boshier found that nonparticipants had greater self/institution incongruence and that the deficiency motivated were more inclined to dropout as were those under 30 years old but that no one variable accounted for the majority of the dropout rate. He concluded that intervening variables only mediate the congruence/dropout relationship.

It is suggested that dropout, particularly occurring for course related reasons, can be understood as a function of the cumulative effects of self/other incongruence developing in the adult education situation, but which initially stems from "deficiency" motivation and intra/self (self/ideal) incongruence" (p. 268).

Although Boshier (1973) asserted that the congruence model has generalizability and predictive power, MacLean (1987) disputed this
claim based upon flaws in Boshier's methodology and instruments. MacLean criticized Boshier's research, stating: "The results obtained from the administration of these measures to adult education participants have been used by Boshier to both buttress and 'validate' the 'congruence' model" (p. 33). MacLean also objected to the research being ex post facto, to the small sample size (233), to the factor analysis methods employed by Boshier in the EPS, and to the discrepancy scores in the PEES. Chi square may have been a safer procedure than t tests in MacLean's opinion. MacLean cautioned that the EPS and PEES should only be used in research until adequate construct validity and predictive power have been established.

Summary/Conclusion

"The implication must be that reasons for dropout are many and complex, thus making prediction of dropout very difficult" (Garrison, 1987, p. 217). The research on dropout in adult education is inconclusive; there are no consistent demographic variables, psychological factors, or sociological reasons for dropping out. Because "adult learner attrition has multiple and complex causes" (Donnarumma et al., 1980, p. 223), the search for methods to ameliorate the dropout rate in adult education, especially in adult high school completion programs, must focus on implications from the literature review. Improved intake procedures, counseling, and support services are implied in the results of the studies cited.
Mentoring

Introduction

Mentoring has been promoted and researched as a component of adult development, but the primary emphasis has been in the business world and the teaching profession (Merriam, 1983). Gray and Gray (1986) developed a comprehensive bibliography of references on mentoring. Of 790 annotated entries, 108 were doctoral dissertations and master theses, 281 were articles, 149 were papers, 55 were papers from conference proceedings, and 45 were books, with the balance being program descriptions, instruments, movies, etc. Among the doctoral dissertations, the majority focused on career and professional development followed by psychology and counseling issues, minority and gender issues, use in education, and definition/description of the concept. Similar patterns were found in the articles and papers; the majority focused on minority and gender issues followed by use for gifted/talented students, in higher education, formal mentoring programs, defining/describing mentoring, and career and professional development. The literature selected for this study was based upon its relevance to the proposed research study and to the understanding of the mentoring concept. The literature review is divided among the general categories of definitions of mentoring, theoretical foundations and research issues, use in business and industry, use in education for professional staff, and use in education for students.
**Mentoring Theory**

There is no consensus on the definition of the term mentor. Fagan (1988) suggested that it is "hard to define but easy to recognize" (p. 6) and that it is "unrealistic to expect a perfect definition" (p. 8). A mentor fulfills three functions according to Fagan (1988): coach, sponsor, and mentor. Bolton (1980) put forth the role of the model as one who shows how to do tasks, as a faster way of learning than direct experience, and as the only method for some complex behaviors; thus, a mentor serves as a role model, a guide, a tutor, a coach, and a confidant. Carmin (1988) claimed that the term mentor is both over and under used.

Mentoring is not clearly conceptualized (Merriam, 1983). Levinson, Darrow, Klein, Levinson, and McKee (1978) listed the functions of a mentor as sponsor, host or guide, exemplar, and counsel. Their work is often used as the basis for research in mentoring. Bova and Phillips (1984) claimed that the benefits of mentoring include growth in sense of competence and purpose, feelings of autonomy, and personal integrity.

"The presence or absence of role models is part of a larger theme of socialization" (Bolton, 1980, p. 198). If one accepts that the purpose of adult learning is to meet the felt needs of the learner, that adults are naturally self-directed learners, and that learning is a fulfilling experience in self-actualization (Knowles, 1984), then mentoring becomes an integral part of the adult education process. Brookfield (1985) labeled this approach as "consumer
oriented" and "essentially reactive, adaptive, and pragmatic" (p. 45); however, his approach is also conducive to the mentoring concept. "Adult education . . . is that activity concerned to assist adults in their quest for a sense of control in their own lives, within their interpersonal relationships, and with regard to the social forms and structures in which they live" (Brookfield, 1985, p. 46).

Finally, mentoring unites academic integration with the institution and social integration with peers (Oestereicher, 1985). This approach to the concept of mentoring has parallels to the Getzels and Guba (1957) social systems model. Within this model there are two dimensions which are independent, yet highly interactive. The nomothetic represents the institution with its roles and expectations. The idiographic represents the individuals with personalities and need-dispositions. "The unique task of administration, at least with respect to staff relations, is just this: to integrate the demands of the institution and the demands of the staff members in a way that is at once organizationally productive and individually fulfilling" (Getzels & Guba, 1957, p. 17). In this model the administrator can be seen as the mentor who seeks to maintain reasonable levels of congruence among expectations, needs, and goals of both the institution and the individual. A possible outcome could be the retention of participants in adult education programs by increased satisfaction.
Defining/Describing Mentoring

Minor controversy exists around the definition and roles/func­tions of mentoring, although there appears to be general consensus that mentoring occurs one on one between an older and/or more expe­rienced person and a younger and/or less experienced person (Carmin, 1988). Fagan (1988) claimed that it is "hard to define but easy to recognize" (p. 6); he continued, "Mentoring appears to mean one thing to developmental psychologists, another thing to business people, and a third thing to those in academic settings" (p. 8). Fagan's definition of mentoring is congruent with the general cons­ensus of an experienced adult befriending and guiding a less expe­rienced person, and he concluded that it is unreasonable to expect a perfect definition because the mentor-protége relationship is a product of human nature, not a chemical reaction.

Recognizing the complexity of the mentor-protégé relationship and the varying degrees of mentoring, Carmin (1988) defined mentor­ing as "a complex, interactive process occurring between individuals of differing levels of experience and expertise which incorporates interpersonal or psychosocial development, career and/or educational development, and socialization functions into the relationship" (p. 10). Gray (1985) supported this socialization aspect of mentor­ing, stating that mentoring "typically means that a wiser, more learned person provides role-modeling, instruction, direction, and motivation to help less experienced protégés benefit from the
mentor's greater expertise, including political and socialization experiences" (p. 237).

Theoretical Foundations and Research Issues

The major areas of conceptual framework for research on mentoring have revolved around the context of the relationship, characteristics of mentors and protegés, the duration and stages of mentoring, and the outcomes for mentors, protegés, and organizations (Collin, 1986). Collin (1986) suggested that because of the subjective nature of mentoring, researchers should take a triangulation approach using generally accepted techniques such as grounded theory, personal construct theory, action research, and case histories with critical incidents and behaviorally-anchored rating scales. She also suggested an alternative, phenomenological approach where the subjectivity and intersubjectivity of the researcher and the researched are underlying assumptions. Suggested approaches under the phenomenological philosophy include the social action method where an individual's actions are analyzed in terms of sequence, hierarchy, cognitive and affective processes, and social mechanisms; the biographical method to study the processual nature of mentoring; and the systems method which studies dynamic whole entities and their complex interactions.

Darling (1986) applied grounded theory in her study of the mentor mosaic which includes mentors, mentoring events, and self-mentoring strategies. Mentors may be classified as major or minor and fall into four major categories: the traditional or the elder,
the step-ahead or older sibling type, the co-mentor or peer, and the spouse mentor. Darling found six self-mentoring strategies in her 150 interviews: the questioning and listening approach, the reading and researching approach, the observing people approach, the education approach, the self-tutoring approach, and the looking for new experiences approach. She concluded that mentoring occurs "through people, through events, circumstances and situations and through our own self-mentoring efforts" (p. 7).

Mentoring in Business and Industry

Gray (1988) has developed a planned mentoring program which facilitates career development. Dividing mentoring into major categories of informal, informal and planned, and planned, Gray advocated that enough is known about mentoring to plan mentoring programs even though there are arguments which claim that the relationship cannot be forced by matching mentors with protegés. To Gray, mentors serve as successful role models, provide on-the-job training, teach the ropes, and share insights and wisdom. Developing a planned program consists of four components: (1) identification and matching of mentors and protegés where participation is voluntary, (2) training of mentors and protegés to develop understanding of roles and expectations, (3) monitoring of the process, and (4) evaluation using surveys or questionnaires with follow-up interviews. As mentors and protegés move through the process, five levels of dependence-independence occur ranging from complete control by the mentor to complete control by the protegé. Because both the mentor
and protegé must both give and take in these five levels, exploitation is prevented (Gray, 1985).

Having originated from programs with gifted/talented/creative students, Gray and Gray's (1985) Helping Relationship Model has application in teacher training, vocational career training, the business community, parenting, and psychological therapy settings. No matter the setting, good mentors are people oriented, tolerate ambiguity, prefer abstract concepts, value the organization and their work, respect and like subordinates, and are confident, secure, flexible, warm, caring individuals who are sensitive to the needs of others.

Clawson (1986) viewed mentoring in business and industry from a contingency theory framework. He noted that mentoring is but one form of developmental relationship which is defined as one where "both parties accept and recognize the learning of the developee as an objective of the relationship" (p. 102). In Clawson's Structural Model of Developmental Relationships, the environmental context, the organizational context, the developer (mentor), the developee (protegé), and the relationship are all interrelated with learning, rewards, and skills being the outcomes of the relationship. Effective developmental relationships are built upon respect, trust, and openness.

Hunt (1986) delineated the differences between informal or traditional mentoring and formal or planned mentoring on the basis of goal focus and social intensity. Traditional mentoring is highly socially intense with a focus on career advancement whereas planned
mentoring is less socially intense with a focus on organizational goals. Hunt concluded that both forms of mentoring can coexist effectively if the organization encourages and recognizes them equally.

In one of the few formal research studies on planned mentoring, Fagan (1986) found few differences among 48 police officers, half of whom participated in a mentoring program. Mentors and protegés were matched on the basis of sex, age, educational level, and marital status. The only significant differences found between the experimental and control groups based upon survey results were that those in the planned program had more job satisfaction, were more likely to be hard-working, and were closer in age and experience to their mentor. The study has limited generalizability because those in the control group were informally mentored, so that the findings can only be applied between formal/planned mentoring and informal mentoring.

Mentoring in Education for Professionals

Research on mentoring in education for the personal and professional development of professional staff has been common at the postsecondary level and only more recently reported at the K-12 level. Appel and Trail (1986) presented an adult education staff development model for mentoring based upon four phases: developmental, consolidation, separation, and redefinition. They stressed a participatory approach to the process: "Both the mentor and mentee must take on major responsibility in the planning, implementation
and evaluation of mentoring experiences and activities" (p. 69).

In a study of 78 untenured assistant professors and 68 tenured associate professors, Brooks and Haring-Hidore (1987) focused on the perceived problems of mentoring relationships. Defining a mentor as "an influential person who significantly helps the protegé achieve major life/career goals (Brooks & Haring-Hidore, 1987, p. 4), survey results from the protegés yielded five categories of problems: inadequacies in mentor behavior, personality, or attitude; failure of mentor to fulfill expected roles and functions; difficulty achieving colleague status and separate identity from mentor; personal aspects interfering with professional; and nonclassifiable. The first category was the most frequently reported problem in mentoring. Survey results from the mentors were divided into three categories with the first, problems integral to mentoring relationships, having four subcategories: perceived deficiencies in protegés, unreasonable demands of protegés, difficulty in establishing collegial relationship, and difficulty in establishing personal and professional balance. The other two categories accounted for only 27 of the 94 problems: those not integral to mentoring relationship and nonclassifiable. Brooks and Haring-Hidore (1987) cautioned that the study was limited by restricted sampling, retrospective self-reports, and data not collected from mentor-protegé pairs but independent samples. They concluded that some problems are inherent in the nature of mentoring and that most occur because of high or mismatched expectations.
Cain (1977) looked at the critical incidents and requirements of mentoring and the implications for in-service training at the postsecondary level. Recommendations from mentors included the need for self-examination of personal attitudes about mentoring, acquisition of the needed skills, and the need for improved administrative and support services especially in the areas of counseling and remedial basic skills education. Cain concluded that the critical requirements for effective mentoring are basically related to the components of interpersonal relations and effective teaching and learning.

Boser and Wiley (1987) focused their questionnaire study of student teacher interns and assigned mentors on the roles and functions of a mentor. Highest agreement between mentors and protegés was found for the role of confidant and door opener and lowest agreement was found for the role of role model, protector, and successful leader. The authors made note of a lack of generalizability because of the small sample size (17 pairs) and the lack of statistical tests, but assert that matched mentoring is feasible in educational environments. They also caution that since "mentors generally perceived themselves as performing more roles and functions than their interns perceived them performing" (p. 15), researchers must be aware that data from only one party (mentor or protegé) may be biased and not a report of actual behavior.
Mentoring in Education for Students

It has long been accepted at the postsecondary level that professors provide mentoring to students as part of their educational development. Auerbach (1984) reported on the Emeritus College model at Southern Illinois University which includes a mentorship service provided to students by retired faculty members. In a dissertation evaluating an experimental advising system at the University of Nebraska-Lincoln, Baack (cited in Gray & Gray, 1986) found that protegés and mentors unanimously preferred the mentoring system over the traditional advising process. Cosgrove's (cited in Gray & Gray, 1986) study of a similar system at the University of San Diego had similar results.

More recently, it has been used effectively with gifted and talented students at the secondary level and below. Gray (1985) based his Helping Relationship Model upon a program of college psychology students mentoring gifted/talented/creative students in Grades 5-12 for a 10-week period on special projects selected by the younger student and directed by the college student. The protegés learned how to apply problem-solving skills and the mentors learned how to help protegés turn passive learning into active learning experiences.

Common characteristics of effective mentors in education have been proposed by several authors. Haensly and Edlind (1986) reported that the ideal mentor type has outstanding knowledge, skills, and expertise in a particular domain; is able to convey enthusiasm;
is able to communicate effectively, including sensitive listening; and is flexible. The ideal protegé type is also able to exhibit enthusiasm; possesses an open-minded, objective, and nondefensive attitude; and has a degree of insightfulness about himself or herself and others. Both should possess a good sense of humor.

Daloz (1986) stated that a mentor's most important function is to hold up a mirror to students to help them extend their own self-awareness. He enumerated the primary elements of mentoring as: (a) active listening, (b) providing structure, (c) expressing positive expectations, (d) serving as an advocate, (e) sharing of one's self, (f) making it special, (g) setting tasks, (h) engaging in discussion, (i) heating up dichotomies—play the devil's advocate, (j) constructing hypotheses, (k) setting high standards, (l) modeling, (m) keeping tradition, (n) offering a map—creative problem solving, (o) suggesting new ways to think about the world, and (p) providing a mirror.

Others have also developed models or handbooks to guide the mentoring process. Noller (1982) published a training handbook for using creative problem solving as an approach to mentoring. Noller took the reader step-by-step through exercises in the how to's of effective mentoring, in illustration of the creative problem-solving process, and in application of the process to improving mentoring relationships. The book has application at various levels; however, the whimsical drawings may appear childish to some adults.

The Helping Process Overview Guidebook (Faddis, Fennimore, Veach, & Pritz, 1988) developed by the National Center for Research...
in Vocational Education as a dropout prevention program is the most comprehensive package of manuals, materials, and video tapes available for at-risk secondary students. It is based on eight steps: referral of potential dropouts, assessment and diagnosis of student needs, development of the individualized helping plan, implementation of the plan, brokering for other needed assistance, service coordination and monitoring, evaluation and revision of the plan, and follow-up after exit from school. A multidisciplinary approach is taken with a team of representatives from the academic subject area, the vocational preparation area, social services, guidance and counseling, and family. A mentor is an outside party who assists the at-risk student by listening actively, assisting in problem solving, developing motivation, clarifying goals, sharing information, linking to others, and advocating on behalf of the student. Manuals, materials, and video tapes are available from the National Center at Ohio State University.

Summary/Conclusion

In Merriam's (1983) review of the literature on mentoring, "a precise definition of mentoring--at least one that all could agree upon--was not to be found" (p. 162). How a researcher decides to define mentoring has a direct effect upon the degree of mentoring found in a study (Merriam, 1983). When researchers use a strict, classical orientation which is intense and long-term, then little evidence of mentoring is found. When a sponsor or helper orientation is taken, then greater evidence of mentoring is found. Merriam
(1983) criticized the research on mentoring for not clearly conceptualizing the term, for unsophisticated research designs, for a tendency to ignore the drawbacks or dangers of mentoring relationships, and for the need for more rigorous research before asserting the value of forced matching in mentoring.

Carmin (1988) also criticized much of the existing research on mentoring for difficulties in defining the term, for being primarily ex post facto designs such as self-report and interviews, for inadequate sample sizes, for instrument validity, and for experimenters' lack of control for preexisting subject variables. She recommended using multiple empirical approaches to investigate mentoring, including intensive case studies and unobtrusive observational methods for content analysis.

"The literature on mentoring is biased in favor of the phenomenon" (Merriam, 1983, p. 169). Hence, the concept needs clarification and more rigorous research and evaluation. It is clear that the mentor fulfills two functions: (1) career: exposing protegés to new opportunities, coaching and sponsoring protegés, and protecting and challenging protegés; and (2) psychosocial: as a role model who counsels, accepts, confirms, and befriends the protegé (Gray & Gray, 1985).
Interaction Between Dropout and Mentoring

Introduction

The literature relating the concepts of dropout in adult education and mentoring is minimal. While researchers attempt to develop a theory of dropout in adult education and a conceptual framework for mentoring, the problem of poor retention rates continues to plague adult education programs, especially high school completion programs. Implied in the conclusions of some of the research on dropout/participation are changes in institutional procedures and the addition of support services for at-risk students. Some limited research on mentoring high school and college students has been conducted. The literature review of the interaction between dropout in adult education and mentoring is divided between implied as a strategy to reduce dropout and direct research on the interaction between the two concepts.

Mentoring as an Implied Strategy

Although not necessarily using the term mentor, several authors proposed strategies for reducing the dropout rate in various adult education settings which share commonalities with the concept of mentoring. Brookfield (1985), in defining adult education as "developing in adults a sense of their personal power and self-worth" (p. 47), listed the principles of the practice of adult education which correlate closely with the functions of a mentor: (a) "participation is voluntary," (b) "respect for self-worth,"
"collaborative," "praxis is at center-activity based," "fosters spirit of critical reflection," and "aim is to nurture self-directed, empowered adults" (p. 48). When a mentor works actively and cooperatively with a protegé to negotiate the educational environment, assisting in problem-solving skills, building self-worth, serving as a role model, and empowering the protegé to take control of his or her own learning, then many of Brookfield's (1985) criteria are fulfilled.

In Bova's (1985) study of participation patterns of adult basic education students, she concluded that adult education providers should provide small group learning experiences, field trips, community awareness activities, and mentoring as a means of attracting and retaining adult basic education students. Charner and Fraser (1986) supported similar elements for successful adult education programs when they proposed that critical elements include availability of support services and peer support groups to reduce structural barriers to participation in adult education and training. Garrison (1985) viewed the relevancy or congruence of an adult's personal goals as vital to the individual's success in adult education. Since his study revealed that dropouts tended to have unrealistic goals, then it is incumbent upon the institution to help the individual reconcile such goals to the reality of the personal situation and environmental/institutional conditions. A mentor could be one method of achieving this reconciliation of unrealistic goals to reality.
According to Beaudin (1982), the factors affecting dropouts in adult education have not been identified. The research only suggests broad generalizations for retention which are congruent with Knowles's andragogical theory of adult learning and which Beaudin (1982) summarized as follows: (a) address real needs, (b) create supportive environment, (c) minimize problems and barriers, (d) accurately communicate expectations and problem areas, and (e) dropout assessment and action necessary. Mentors could help new students by creating a supportive environment within the educational institution, by trouble shooting problems with the new student and assisting in minimizing barriers, and by communicating the expectations of the institution while considering the needs of the new student. In essence, acting as the intermediary between the needs and expectations of the individual and the goals and expectations of the institution (Getzels & Guba, 1957).

Mentoring as a Specific Strategy

Only a few studies have been reported on the use of mentoring in academic settings to serve at-risk students at the secondary or postsecondary levels. Again, some of the literature only refers to support services in general and not specifically to mentoring. Among these are Beacham's (1980) interview study of high school dropouts who reported that they were more likely to go to counselors than peers for help related to problems with their education. Lewis (1984) developed a typology of a support network based upon interviews with 214 adult basic education students: rooters, constants,
resources, challengers, and toxics. Teachers and counselors were seen as resources, whereas friends and families were seen as rooters; the student himself or herself was seen as his or her own worst enemy. Lewis concluded that support systems are an essential ingredient for high risk students and that former students are able to gain the trust of current students more easily than others. Baty and Inocelda (1987) used outreach workers and aggressive support services to recruit 296 adults into a community education center in Hawaii. Of those recruited, 180 attended at least one class, 61.6% completed classes in which no tests or grades were given, 26.4% completed the GED or Competency Based Education program, and 27.1% completed overall. Each of these studies highlight the importance of a personal support system for retention in education whether peer or institutional. Implied are elements of mentoring.

Peer mentors have been used successfully between and among high school and college students. Richardson (cited in Gray & Gray, 1986) reported on a City University of New York project where college students mentor high school students at risk of dropping out. In this strictly voluntary program, mentors and mentees were matched on the basis of sex, age, cultural similarity, geographic distance, similarities in likes and hobbies, career aspirations, and hours available. Voluntary matching was later implemented. Mentor roles included motivating regular attendance, instructing mentees on how to ask questions and seek help, visiting mentees in school and/or class, discovering mentee's career goals, and serving as a personal ombudsman. No statistics on the effectiveness of this program were
reported. Turkel and Abramson (1986) also used college students as mentors and peer tutors for at-risk high school students in a more formal research study. No significant difference in attendance, grade point averages, and test scores were found between at-risk students with mentors and the control group. However, on pre- and posttest results on the Quality of School Life Scale, there was a significant improvement in the attitude of mentees. The data did not deal with the dropout rate.

In another experimental study, Oestereicher (1985, 1987) randomly assigned six peer mentors to six randomly selected classes of students with low basic skills at Brooklyn College. Mentors received training and maintained a log of experiences and activities. Oestereicher (1985) defined the role of the mentor as one to "introduce novice to surroundings, guide him or her in work, and generally serve as an advisor and intermediary between the organization and the new member" (p. 12). A mentor is not a co-instructor or a tutor, but one who having successfully completed the course is familiar with the material and the skills required to be successful and serves as a reminder that the goal is attainable. Mentored students earned better grades and had better attitudes, as measured by the Brown/Holtzman Survey of Study Habits and Attitudes and a questionnaire on program satisfaction, than the control group. Ninety-five percent would recommend mentoring to other students. The statistics are reported in percentage form only; no formal hypothesis testing is given. Again, no data were reported on the dropout rate.
Summary/Conclusion

Few citations exist in the literature relating the concepts of dropout in adult education and mentoring. The literature review of the interaction between dropout in adult education and mentoring was discussed as an implied strategy to reduce dropout and as direct research on the interaction between the two concepts. A common theme of support services to reduce the dropout rate in adult education implied mentoring as a strategy. Suggested functions included those of role model, intermediary between the individual and the institution, troubleshooter who minimizes problems and barriers, and communicator of expectations and needs. Research on mentoring as a specific strategy reported success in improving students' attitudes and grades but did not report statistics on dropout rates.

Summary

The literature on dropout and mentoring is varied and inconclusive. The dropout literature was categorized according to research on demographic, institutional, psychological, and psychosociological variables related to dropout. The literature on mentoring was categorized according to research on definitions of the concept, theoretical foundations and research issues, use in business and industry, use in education for professional staff, and use in education for students.

There are no concrete demographic variables related to dropout. The literature only points to general trends: Dropouts tend to be...
younger (Boshier, 1977; Bova, 1985; Diekhoff & Diekhoff, 1984; Russ-Eft & McLaughlin, 1981; Sainty, 1971); dropouts tend to be female (Leonard et al., 1986; Russ-Eft & McLaughlin, 1981); dropouts tend to be from ethnic minorities (Diekhoff & Diekhoff, 1984; Leonard et al., 1986; Russ-Eft & McLaughlin, 1981); dropouts tend to be employed (Diekhoff & Diekhoff, 1984). The institutional barriers to participation have been frequently researched (Boshier, 1973, 1977; Charner & Fraser, 1986; Cross, 1981; Darkenwald & Valentine, 1985), yet reveal no consistent pattern.

The psychological and sociological literature on dropouts points to the general theme of dropout being a product of the interaction of psychological variables and the learning environment. Several studies imply or explicitly state the need for intervention strategies and support services for students at-risk of dropping out (Boshier, 1971a, 1971b, 1972, 1973, 1977; Darkenwald & Gavin, 1987; Garrison, 1985; Londoner, 1972; Martin, 1984; Wilson, 1980). Social systems theory (Getzels & Guba, 1957) was found to be an adequate theoretical base for relating the concept of dropout to mentoring as supported by Darkenwald and Gavin (1987) and Boshier (1971a, 1971b, 1972, 1973, 1977).

Although no universal definition of mentoring was found, a general consensus emerged that mentoring occurs one on one between an older and/or more experienced person and a younger and/or less experienced person. The function of mentoring appears to be one of introducing the mentee to the organizational environment and guiding the mentee in his or her personal and/or professional development.
The socialization aspect of mentoring is generally recognized (Carmin, 1988; Gray, 1985). Planned mentoring programs (Gray, 1988) were discussed as a means of providing role models, on-the-job training, and personal support. Effective mentors were found to be good listeners, problem solvers, door openers, open-minded, people oriented, and warm, caring individuals (Daloz, 1986; Gray & Gray, 1985; Haensly & Edlind, 1986).

Literature on the interaction between dropout and mentoring was limited. Several studies implied mentoring as an effective strategy to reduce the dropout rate (Beaudin, 1982; Bova, 1985; Brookfield, 1985; Charner & Fraser, 1985). Mentoring as a specific strategy (Baty & Inocelda, 1987; Lewis, 1984; Oestereicher, 1985, 1987; Richardson, cited in Gray & Gray, 1986; Turkel & Abramson, 1986) was discussed as a means of improving student satisfaction with the program, but few statistical results on the dropout rate were found.
CHAPTER III

DESIGN AND METHODOLOGY

Introduction

The research design of this study was intended to analyze the possible relationship between the dropout rate in an adult high school completion program and peer mentoring. That is, does dropout in adult high school completion vary significantly between students who have an assigned peer mentor and those who do not? Also, if a relationship does exist between the dropout rate in an adult high school completion program and peer mentoring, does the relationship vary by sex, age, ethnic origin, or employment status.

The operational definitions described in Chapter I are used to explain the research design. These operational definitions are used to describe the data collection and its relationship to the design. The final design is described and discussed relative to the research questions outlined previously in Chapter I and enumerated in this chapter. Discussion of internal and external validity considerations and possible research design limitations are discussed at the end of this chapter.
Operational Definition of Research Design Variables

It is necessary to define and limit the variables under analysis in a comparative study such as this because of the multitude of variables related to dropout and mentoring.

Adult Education

For the purposes of this study, adult education is defined as an adult high school completion program, that is, one which offers courses leading to a high school diploma for adults over the age of 18. The state of Michigan requires that these programs offer courses 60 hours in length for half a credit in Carnegie units. Courses must be taught by certified teachers and the content must be comparable to local high school courses.

Dropout

Dropout is defined as anyone who enrolls in an adult high school completion program and attends once in the first 3 weeks of the semester and who fails to attend during each of the last 3 weeks of the first 8-week period of the semester. All reasons for dropping out were included in the data analysis except for death of the student or a student move outside the original school district boundaries in which the adult education program operated.
**Persister**

A persister is defined as any student enrolled and in attendance once in the first 3 weeks of the semester and also in attendance at least once during the last 3 weeks of the first 8-week period of the semester with an excused absence for any absences during the last 3 weeks of the study period. An excused absence is defined as that recorded as excused on the official attendance reports of the program.

**Peer Mentor**

A peer mentor is defined as a student who has successfully completed at least one semester in an adult high school completion program and who is enrolled for the semester of the study. A peer mentor is one who guides a fellow student in his or her work and who serves as a role model and an intermediary between the institution and the new student. Mentor roles included motivating regular attendance, instructing mentees on how to ask questions and seek help, visiting mentees in school and/or class, discussing mentees' personal and career goals, and serving as a personal ombudsman (Richardson, cited in Gray & Gray, 1986). A mentor was not a co-instructor or a tutor, but one who could serve as a reminder that the goal was attainable because he or she had completed courses successfully and was continuing in courses (Oestereicher, 1987).
Populations

The population addressed by this study was all adult high school completion students in the state of Michigan. The subpopulation selected for this study was all adult high school completion students in Kalamazoo County, Michigan. Adult high school completion programs operate in eight of the nine school districts in Kalamazoo County: Climax-Scotts, Comstock, Galesburg-Augusta, Gull Lake, Kalamazoo, Parchment, Portage, and Vicksburg. The Schoolcraft School District is served by Portage and Vicksburg. Kalamazoo Public Schools operates its program independently of the other districts which belong to the Kalamazoo County Adult Education Consortium which is administered by a governing board consisting of the superintendents of each of the other eight school districts. Each of the individual programs is operated individually within the consortium under the direction of separate directors of adult education.

The demographic characteristics of adult high school completion students in Kalamazoo County parallel those of the state of Michigan according to data from the State Department of Education (see Table 3, Chapter IV). Total enrollments vary by district size from an average of 30 in Gull Lake to over 1,600 in Kalamazoo. Total enrollment for the 1990-91 academic year as reported on the official Fourth Friday Report was 2,000 students for a total of 1,411 Full Time Equivalent Students (796 in the Kalamazoo County Adult Education Consortium and 615 in the Kalamazoo Adult Education Program).
Sixty-two percent were enrolled in adult high school completion programs; the remainder were enrolled in adult basic education programs.

The purpose of adult high school completion programs is to allow high school dropouts over the age of 18 to complete the requirements for a high school diploma. Core academic requirements for a diploma are the same as the regular 9-12 programs within the individual programs. Variations on total number of credits required may exist between individual adult high school completion programs and its respective high school but are consistent among all adult programs in the county.

**Sampling**

The sample consisted of all students over the age of 18 who had enrolled for the first time in an adult high school completion program in Kalamazoo County, Michigan, during the winter semester of 1991. Only new enrollees were selected for the sample to avoid possibly influencing the results by including students who had previously enrolled and dropped out of adult education. Programs were then assigned on a matched basis to the control group and the experimental group. New students enrolled in the experimental groups were assigned peer mentors on a one-to-one basis in addition to the normal services of the program. The control groups received the normal services of the program, but did not have an assigned peer mentor.

Peer mentors were recruited from currently enrolled students who had demonstrated a positive role model attitude through
attendance records, academic records, and participation in school related functions. Peer mentors received a 1- to 2-hour training session (see Appendix B) which included descriptions of the mentor role and tasks, suggestions for problem solving techniques, and general information about program procedures. Mentors were asked to maintain a log of activities relative to contacts with their assigned mentees (see Appendix C). Peer mentors were randomly assigned to new enrollees with males being assigned to males and females to females and with day students to day students and evening students to evening students. This matching was done to facilitate contacts between the mentors and mentees and is supported by research findings in other studies (Boser & Wiley, 1987; Fagan, 1986; Gray, 1988; Richardson, cited in Gray & Gray, 1986).

Research Methodology

An experimental group-control group: matched subjects design was selected for use in this study. Kerlinger (1986) claimed the following advantages for this design: (a) best built-in theoretical control, (b) flexibility, (c) several variables testable at one time, and (d) statistically and structurally elegant. Randomization and comparison groups are necessary for internal validity (Kerlinger, 1986).

The purpose of the study was to determine if a peer mentoring program would have an effect on the dropout rate in adult high school completion programs. The following research questions were addressed:
1. Do adults enrolled in an adult high school completion program who are assigned a peer mentor have a significantly different dropout rate than adults who do not have an assigned peer mentor?

2. Do adults who have an assigned peer mentor who drop out of an adult high school completion program differ significantly in age from dropouts who do not have an assigned peer mentor?

3. Do adults who have an assigned peer mentor who drop out of an adult high school completion program differ significantly in sex from dropouts who do not have an assigned peer mentor?

4. Do adults who have an assigned peer mentor who drop out of an adult high school completion program differ significantly in ethnic origin from dropouts who do not have an assigned peer mentor?

5. Do adults who have an assigned peer mentor who drop out of an adult high school completion program differ significantly in employment status from dropouts who do not have an assigned peer mentor?

The following conceptual hypotheses were researched in response to the research questions:

1. There is a relationship between peer mentoring and the dropout rate in adult high school completion programs.

2. There is a relationship between dropout and the variable of age in adult high school completion programs.

3. There is a relationship between dropout and the variable of sex in adult high school completion programs.

4. There is a relationship between dropout and the variable of ethnic origin in adult high school completion programs.
5. There is a relationship between dropout and the variable of employment status in adult high school completion programs.

Research Design

The independent variable, or treatment, in this study was having an assigned peer mentor; the experimental groups had assigned peer mentors and the control groups did not have assigned peer mentors. Additional independent variables were sex, ethnic origin, and employment status which were measured on a nominal scale. Age was measured on an interval scale using the categories required on the annual federal report AE 4078 A and B: 16-24 years, 25-44 years, 45-59 years, and age 60 and older. The dependent variable was the dropout rate in adult high school completion programs. This variable was also measured on a nominal scale. At the end of the experimental study, the dropout rates between the experimental and the control groups were compared statistically for significant differences.

The operational statements of the conceptual hypotheses were:

1. The dropout rate for adults enrolled in an adult high school completion program who have an assigned peer mentor will be significantly lower than adults who do not have an assigned peer mentor.

   \[ H_1 : \mu_1 < \mu_2 \]

2. There will be a significant difference between the dropouts in the experimental and control groups on the demographic variable of age. Students under the age of 24 will have a higher dropout
rate than students over the age of 24 (Boshier, 1977; Bova, 1985; Diekhoff & Diekhoff, 1984; Russ-Eft & McLaughlin, 1981; Sainty, 1971).

\[ H_2 : \mu_1 > \mu_2 \]

3. There will be a significant difference between the dropouts in the experimental and control groups on the demographic variable of sex. Females will have a higher dropout rate than males (Leonard et al., 1986; Russ-Eft & McLaughlin, 1981).

\[ H_3 : \mu_1 > \mu_2 \]

4. There will be a significant difference between the dropouts in the experimental and control groups on the demographic variable of ethnic origin. Ethnic minorities will have a higher dropout rate than whites (Diekhoff & Diekhoff, 1984; Leonard et al., 1986; Russ-Eft & McLaughlin, 1981).

\[ H_4 : \mu_1 > \mu_2 \]

5. There will be a significant difference between the dropouts in the experimental and control groups on the demographic variable of employment status. Employed students will have a higher dropout rate than unemployed students (Diekhoff & Diekhoff, 1984).

\[ H_5 : \mu_1 > \mu_2 \]

The operational null hypotheses of the study were:

1. There will be no significant difference between the dropout rates in adult high school completion programs for adults who have an assigned peer mentor and adults who do not.

\[ H_0 : \mu_1 = \mu_2 \]
2. There will be no significant difference between dropouts in the experimental and control groups on the demographic variable of age.

\[ H_0 : \mu_1 = \mu_2 \]

3. There will be no significant difference between dropouts in the experimental and control groups on the demographic variable of sex.

\[ H_0 : \mu_1 = \mu_2 \]

4. There will be no significant difference between the dropouts in the experimental and control groups on the demographic variable of ethnic origin.

\[ H_0 : \mu_1 = \mu_2 \]

5. There will be no significant difference between the dropouts in the experimental and control groups on the demographic variable of employment status.

\[ H_0 : \mu_1 = \mu_2 \]

Permission to conduct this study was granted by the Human Subjects Institutional Review Board of Western Michigan University.

Data Collection and Analysis Methods

At the beginning of the winter semester of 1991, demographic data on the sex, age, and ethnic origin of all students enrolling for the first time were gathered from the enrollment forms of the eight adult high school completion programs in Kalamazoo County. Employment status was determined from enrollment forms where possible and from direct questioning of the experimental group by program
personnel. Enrollment forms routinely gather this information as well as asking if a student has ever been enrolled in an adult education program before and, if so, where. At the end of the 8-week period (mid-term), the attendance records were studied to classify students as dropouts or persisters based upon the operational definitions given in Chapters I and III. Each adult education program in Kalamazoo County uses the state approved computer record keeping system (STUREC) for student enrollments and attendance, ensuring uniformity of data.

The results are shown in tables showing number of participants in each program in each group (experimental and control), sex and age distribution, employment status, and ethnic background as well as the actual number of dropouts within each category for both groups. The chi-square coefficient (Hinkle, Wiersma, & Jurs, 1988) was used for Hypothesis 1 to determine whether a systematic relationship existed between the dropout and peer mentoring. Proportions and the chi-square coefficient were computed for sex and employment status. Fishers exact test was used when frequencies per cell were less than 5. The mean, variance, and standard deviation were calculated for age as well as an analysis of variance (ANOVA) (Hinkle et al., 1988). The dropout rates in each program were also compared to the previous semester to determine sampling similarity. The demographic variables of sex, age, and ethnic origin were also compared to the state as well as to Kalamazoo County statistics to determine sampling similarity.
Internal and External Validity

Campbell and Stanley (1963) outlined two general criteria for research designs: internal and external validity. Internal validity deals with determining if the experimental treatment really made a difference in the dependent variable. External validity deals with the concept of generalizability to other populations, settings, treatment variables, and measurement variables. Campbell and Stanley described eight different classes of extraneous variables which pose a threat to internal validity and four which confound external validity. Bracht and Glass (1968) further clarified the concept of external validity. Each of these variables will be addressed in relation to the study presented in this paper.

The variables of testing/treatment interaction, instrumentation, and statistical regression are not applicable to this study since no pre- or posttest instrument was involved. An attempt was made to control for history, maturation, selection, and selection-maturation interaction through the use of experimental and control groups. Experimental mortality is the object of the study.

External validity can be categorized as two types: population and ecological (Bracht & Glass, 1968). Under population validity the researcher must acknowledge the limitations of using the accessible population versus the target population. In this study the experimentally accessible population is comparable to the target population based upon data from the Michigan Department of Education and local records. Generalizability will be limited to other adult
high school completion programs in Michigan with the same general demographic characteristics. The second concern for population validity is related to the interaction of personological variables and the treatment effects. In this study an attempt was made to control this variable by matched assignment to the experimental and control groups.

The ecological threats to external validity are more complex. The independent variables have been explicitly described. Only one treatment was introduced in the study to eliminate multiple-treatment interference. Pre- and posttest sensitization was not an issue since no tests were administered. An attempt was made to control the interaction of time of measurement and treatment effects by limiting the length of the study to the first half of the semester when most dropouts occur. Measurement of the dependent variable was a simple dichotomy measured on a nominal scale. The experimenter did not have direct contact with the experimental group, only with the mentors, thus minimizing the experimenter effect. The remaining external variables presented greater problems in this study.

The Hawthorne effect and novelty and disruption effects were a primary concern in this study. A requirement by the Human Subjects Institutional Review Board that participants sign a release form (see Appendix D), thus informing them that they were part of an experimental study, leaves the former concern as a major limitation of this study. The latter concern was addressed by selecting, matching, and assigning entire programs to be designated as experimental and control groups, thus preventing students in an individual
program from being aware of differential treatment. The interaction of history and treatment effects was minimized, although not eliminated, by the mentoring occurring over an 8-week period. Historical conditions at the time of the experiment were assumed to be the same for the entire sample population as a whole. Individual differences among programs in curriculum, teaching methods, administration, social environment, and other parameters were also acknowledged and it was assumed that these differences were controlled by the matched assignment to the experimental and control groups.

Limitations of the Study

As with most educational research, an assumption was made that the sample population was representative of the entire target population. Although comparisons of the sample to the target population were made on sex, age, ethnic origin, and employment status, the possibility of sampling error limits the generalizability of this study to similar populations in the state of Michigan. The target population has been limited to the state of Michigan because of its unique structure and funding for adult high school completion programs. Limiting the target population again restricts the generalizability of this study to adult education populations in other parts of the country.

The multitude of variables affecting the dropout rate in adult education programs posed difficulties in the research design. Inherent in the design is an attempt to control extraneous variables by matched assignment of high school completion programs to the
experimental and control groups. It was assumed that all subjects in the sample would be subject to similar external extraneous variables such as family problems, transportation difficulties, and child care concerns. It was also assumed that psychological and sociological variables shown in the literature review to be related to dropout would be present in all potential dropouts. Therefore, the effect of the experimental treatment, a peer mentoring program, should have maximized the treatment effect and minimized the extraneous variables relative to dropout.

A major limitation in this study was the inability to use total random assignment of individuals county wide to the treatment and control groups. It was assumed that differential treatment of students within the same program would have seriously affected the outcome of the research by having students without mentors question the apparent preferential treatment and possibly dropping out because of a perception of discrimination. The converse was also possible, that students with mentors may have been influenced positively or negatively by being part of a special program, thus again affecting the outcome of the study. Therefore, matched assignment of intact groups was selected to avoid threatening the validity of the study any more than necessary. The sacrifice of true random assignment was deemed preferable to the possible contamination of the results.

Research which deals with complex psychological and sociological phenomenon such as dropout and mentoring is always subject to limitations. Courtney (1986) asserted that the power of research
comes from illuminating different and unrelated areas of knowledge and in generating implications for new issues and problems. While acknowledging its limitations, this study attempted to gather data on a possible solution to the dropout problem in adult high school completion programs which to date has not been extensively researched.

Summary

This research study used an experimental-control group: matched subjects design, selecting its sample from all adult high school completion programs in Kalamazoo County. The purpose of the study was to determine if a peer mentoring program would have an effect on the dropout rate in adult high school completion programs. The independent variable under consideration was having an assigned peer mentor. Additional independent variables analyzed were sex, age, ethnic origin, and employment status. The dependent variable was the dropout rate in adult high school completion programs. It was hypothesized that the dropout rate would be lower for adults in the experimental groups who had assigned peer mentors than for those in the control groups who did not have assigned peer mentors. It was also hypothesized that the dropout rate would be higher for students under the age of 24, for females, for ethnic minorities, and for employed students.

Enrollment data were maintained for each of the eight school districts in Kalamazoo County which operates an adult high school completion program. Programs were matched by size of enrollment and
similarity of populations and assigned to the experimental and control groups to control for differential treatment effects. Data were collected for the first 8 weeks of the winter 1991 semester. The results of the study were analyzed using frequency distributions. The chi-square coefficient was used to test the relationship between the dropout rate and peer mentoring. Proportions and chi-square were computed for sex, age, and employment status. The mean, variance, standard deviation, and an ANOVA were calculated for age.

Attempts were made to control various threats to internal and external validity, primarily through matched assignment to the experimental and control groups. The primary concern for validity centered around novelty and disruption effects which was the major reason for matched assignment of intact programs rather than random assignment of individuals within programs. The Hawthorne Effect remained another concern because of voluntary participation. The sample population was compared to the target population, adult high school completion students in the state of Michigan, for comparability. The generalizability of this study is limited to similar populations in the state of Michigan.
CHAPTER IV

RESULTS

Introduction and Format

The purpose of this study was to test the existence or non-existence of a relationship between peer mentoring and the dropout rate in an adult high school completion program. Data were collected using an experimental-control group: matched subjects design as described in Chapter III. First the sample population will be described and compared to the populations of Kalamazoo County and Michigan. Each research question will be discussed with respect to the test data collected for that question.

Descriptive and inferential statistics will be presented for the group as a whole and for the treatment and control groups separately. The chi-square analysis for the comparison of the dropout rate in mentored and nonmentored groups will be reviewed. The data analysis for the demographic variables of age, sex, ethnic origin, and employment status will then be reviewed.

Description of Sample Population

The sample was drawn from the total adult high school completion population in Kalamazoo County. Subjects selected for the sample included all adults over the age of 18 who had never been enrolled in an adult education program prior to the start of this
study (winter semester, 1991). Table 1 shows the numbers of subjects in each category by program. The enrollment forms for each of the eight adult high school completion programs in Kalamazoo County were inspected to derive a list of all students who met the above criteria. A student code number was assigned and sex, age, and ethnic origin were recorded. Employment status was derived from enrollment forms where possible and from direct questioning for the experimental groups. Employment status data were not available for all subjects in the sample population.

Table 1

Numbers of Subjects in Each Category by Program

<table>
<thead>
<tr>
<th>Program</th>
<th>Control</th>
<th>Treatment</th>
<th>Nonparticipating</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comstock</td>
<td>0</td>
<td>9</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Climax-Scotts</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Galesburg-Augusta</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Gull Lake</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Kalamazoo</td>
<td>70</td>
<td>0</td>
<td>0</td>
<td>70</td>
</tr>
<tr>
<td>Portage</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Parchment</td>
<td>0</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Vicksburg</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total sample</strong></td>
<td><strong>79</strong></td>
<td><strong>32</strong></td>
<td><strong>31</strong></td>
<td><strong>142</strong></td>
</tr>
</tbody>
</table>
Kalamazoo, Gull Lake, and Climax-Scotts were selected as control groups, with Comstock, Galesburg-Augusta, Portage, Parchment, and Vicksburg serving as treatment sites. Climax-Scotts was selected as a match for Vicksburg and Galesburg-Augusta as a match for Gull Lake because of geographic proximity and similarity of populations. The former are both small rural villages, and the latter are both similar suburban areas. Kalamazoo was selected as a match for Comstock, Parchment, and Portage combined because of geographic proximity and proportion of ethnic minorities and economically disadvantaged students.

As the enrollment forms were being searched for students who met the necessary criteria for mentoring, each of the treatment sites recruited an estimated number of potential mentors for training. Mentors were selected based upon positive attitude toward adult education as demonstrated by consistent attendance and grades. During the first 2 weeks of the winter 1991 semester, mentor training was conducted at each treatment site by this researcher to insure uniformity of content and delivery. Each session consisted of a description of the mentor role and tasks, an exercise in creative problem solving, and general information about program procedures. At the end of the training session, potential mentors were asked to volunteer to serve as mentors for new students. Of the 55 who were trained, 54 volunteered to serve as peer mentors.

Sixty-three students were identified for the treatment groups and 79 students were identified for the control groups for a total of 142 subjects. Of the 63 in the experimental groups, 31 either
dropped prior to being assigned a mentor or declined to participate by not signing the necessary release form, leaving an adjusted sample population of $N = 111$. Data were collected on all 142 students and analyzed using appropriate statistical procedures. The adjusted sample population of $N = 111$ was used to test the research hypotheses.

Comparison of Sample Population

Tables 2 and 3 display a comparison of the sample population for age, sex, and ethnic origin to the total population and to the total adult education population for Kalamazoo County and the state of Michigan. Information for these demographics was obtained from the Community Information System at Western Michigan University and from the Department of Adult Extended Learning at the Michigan Department of Education. The information is based on data for 1987-88, the last year that complete information on the selected demographic variables was available for both the total population and the total adult education population.

In general, Kalamazoo County is representative of the demographic characteristics of the state of Michigan with the exception of the total Black population being 4.9% less. Accurate comparisons between Kalamazoo County and the state of Michigan for the adult education population cannot be made in all categories with as much confidence because the city of Detroit did not report data for the 1987-88 school year. This factor may account for Kalamazoo County having a significantly higher percentage of Blacks and students ages
Table 2
Selected Demographics by Percentage for Total Population

<table>
<thead>
<tr>
<th>Ethnic origin</th>
<th>Kalamazoo County</th>
<th>State of Michigan</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian, Oriental, and Hispanic</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Black</td>
<td>8.5</td>
<td>13.4</td>
</tr>
<tr>
<td>White</td>
<td>90.2</td>
<td>85.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Kalamazoo County</th>
<th>State of Michigan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>16-24 years</td>
<td>9.0</td>
<td>9.2</td>
</tr>
<tr>
<td>25-44 years</td>
<td>16.6</td>
<td>16.7</td>
</tr>
<tr>
<td>45-59 years</td>
<td>6.5</td>
<td>7.2</td>
</tr>
<tr>
<td>60+ years</td>
<td>5.7</td>
<td>8.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>48.5</strong></td>
<td><strong>51.5</strong></td>
</tr>
</tbody>
</table>

aBased on 1987 data provided by Community Information System, Western Michigan University.
Table 3
Selected Demographics by Percentage for Total Adult Education Population

<table>
<thead>
<tr>
<th>Ethnic origin</th>
<th>Kalamazoo County adult education</th>
<th>State of Michigan adult education</th>
<th>Original sample (N = 142)</th>
<th>Study sample (N = 111)</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian</td>
<td>1.6</td>
<td>0.9</td>
<td>1.4</td>
<td>0.9</td>
</tr>
<tr>
<td>Oriental</td>
<td>1.9</td>
<td>3.5</td>
<td>0.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>4.0</td>
<td>6.3</td>
<td>4.2</td>
<td>4.5</td>
</tr>
<tr>
<td>Black</td>
<td>24.0</td>
<td>11.8</td>
<td>26.8</td>
<td>31.5</td>
</tr>
<tr>
<td>White</td>
<td>68.5</td>
<td>77.4</td>
<td>66.9</td>
<td>63.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Kalamazoo County adult education</th>
<th>State of Michigan adult education</th>
<th>Original sample (N = 142)</th>
<th>Study sample (N = 111)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male Female</td>
<td>Male Female</td>
<td>Male Female</td>
<td>Male Female</td>
</tr>
<tr>
<td>16-24</td>
<td>24.1男性 24.9女性</td>
<td>18.4男性 20.4女性</td>
<td>33.1男性 26.1女性</td>
<td>36.9男性 24.3女性</td>
</tr>
<tr>
<td>25-44</td>
<td>16.7男性 21.4女性</td>
<td>17.0男性 21.8女性</td>
<td>14.8男性 16.9女性</td>
<td>14.4男性 16.2女性</td>
</tr>
<tr>
<td>45-59</td>
<td>5.1男性 5.5女性</td>
<td>5.1男性 6.1女性</td>
<td>2.8男性 4.2女性</td>
<td>1.8男性 4.5女性</td>
</tr>
<tr>
<td>60+</td>
<td>1.2男性 1.0女性</td>
<td>3.2男性 8.0女性</td>
<td>0.7男性 1.4女性</td>
<td>0.9男性 0.9女性</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>47.2男性 52.8女性</strong></td>
<td><strong>43.7男性 56.3女性</strong></td>
<td><strong>51.4男性 48.6女性</strong></td>
<td><strong>54.1男性 45.9女性</strong></td>
</tr>
</tbody>
</table>

*Based on 1987-88 data from Adult Extended Learning, Michigan Department of Education (for Adult Basic Education and High School Completion).*

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16-24 enrolled in adult education compared to the state of Michigan. Kalamazoo County also has significantly fewer students over the age of 60 enrolled in adult education when compared to the state of Michigan. It is common practice in Michigan for adult education programs to operate in nursing homes; since there are no nursing home programs in Kalamazoo County, this may account for the difference in numbers of students over the age of 60.

Of the total sample population of 142, 51.41% were male and 48.59% were female. This sample compared to the total adult education population for Kalamazoo County overrepresented males by 4.2% and underrepresented females by 4.2%. The mean age was 26.38 years, the median age was 22 years, and the mode for age was 19 years old. When compared to the total adult education population for Kalamazoo County, the sample population had 9% more males ages 16-24, 4.5% fewer females, and 1.91% fewer males ages 25-44, and 1.27% fewer males ages 45-59. Minorities comprised 33.1% of the total sample population: American Indian--1.41%, Asian/Pacific Islander--0.70%, Hispanic--4.23%, and Black--26.76%. The sample population underrepresented Whites by 1.6% when compared to the total Kalamazoo County adult education population. With the exceptions of males ages 16-24, females ages 25-44, and total percentages of males and females, it appears that the sample population is a relatively accurate reflection of the total adult education population of Kalamazoo County.
The Relationship Between Peer Mentoring and Dropout Rate

The total sample population of 142 consisted of adults over the age of 18 who had never been enrolled in an adult high school completion program prior to the winter 1991 semester. Of the 142, 31 potential subjects for the treatment group either dropped before being assigned a mentor or refused to participate in the mentor study by not signing and returning the necessary release forms. The balance of the subjects (N = 111) were included in the data analysis. Thirty-two subjects received the peer mentoring treatment and 79 subjects did not receive the peer mentoring treatment. Table 4 shows the numbers and percentages of dropouts and persisters by mentoring status.

<table>
<thead>
<tr>
<th></th>
<th>No mentor</th>
<th></th>
<th>Mentor</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Dropout</td>
<td>35</td>
<td>31.53</td>
<td>1</td>
<td>0.90</td>
<td>36</td>
<td>32.43</td>
</tr>
<tr>
<td>Persister</td>
<td>44</td>
<td>39.64</td>
<td>31</td>
<td>27.93</td>
<td>75</td>
<td>67.57</td>
</tr>
</tbody>
</table>

Thirty-six (32.43%) of the adjusted sample were classified as dropouts based upon the criteria outlined in Chapter III: in attendance at least once in the first 3 weeks of the study and not in
attendance at least once in the last 3 weeks of the study. Seventy-five (67.57%) were classified as persisters based upon attendance at least once in the last 3 weeks of the study. Table 5 shows data collected on the dropout rates for the fall 1990 semester and the winter 1991 semester. The overall dropout rate was 36.89% and 30.60%, respectively. These figures include all adult high school completion students in Kalamazoo County including those under 18 years of age. Individual program dropout rates ranged from 14.29% to 67.74%. The overall dropout rate of the sample population appears to fall within the normal dropout rate for adult high school completion programs in Kalamazoo County.

Within the treatment group, one subject (3.13%) was classified as a dropout for an effective retention rate of 96.87%. Within the nontreatment group, 35 subjects (44.30%) were classified as dropouts for an effective retention rate of 55.70%. The chi-square test for the sample showed a significant relationship between peer mentoring and dropout status at an alpha level of .05, $\chi^2(1, N = 111) = 17.623, \ p < .05$. The level of significance was computed at .0003; therefore, a significant difference exists between the dropout rate between the mentored and nonmentored groups. The data did support a relationship between peer mentoring and the dropout rate in adult high school completion programs.

The Relationship Between Age and Dropout Status

Table 6 displays the age classifications and numbers for the sample population. The mean age was 26.27 years old, the median age
Table 5

Dropout Comparison Data

<table>
<thead>
<tr>
<th>Program</th>
<th>Total heads</th>
<th></th>
<th>Drops</th>
<th></th>
<th>Drop rate (percentage)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
<td>Winter</td>
<td>Fall</td>
<td>Winter</td>
<td>Fall</td>
<td>Winter</td>
</tr>
<tr>
<td>Climax-Scotts</td>
<td>66</td>
<td>30</td>
<td>32</td>
<td>9</td>
<td>48.48</td>
<td>30.00</td>
</tr>
<tr>
<td>Comstock</td>
<td>386</td>
<td>347</td>
<td>164</td>
<td>150</td>
<td>42.49</td>
<td>43.23</td>
</tr>
<tr>
<td>Galesburg</td>
<td>94</td>
<td>92</td>
<td>30</td>
<td>10</td>
<td>31.91</td>
<td>10.87</td>
</tr>
<tr>
<td>Gull Lake</td>
<td>31</td>
<td>30</td>
<td>21</td>
<td>17</td>
<td>67.74</td>
<td>56.67</td>
</tr>
<tr>
<td>Kalamazoo</td>
<td>560</td>
<td>487</td>
<td>244</td>
<td>150</td>
<td>43.57</td>
<td>30.80</td>
</tr>
<tr>
<td>Parchment</td>
<td>259</td>
<td>265</td>
<td>131</td>
<td>80</td>
<td>50.58</td>
<td>30.19</td>
</tr>
<tr>
<td>Portage</td>
<td>470</td>
<td>438</td>
<td>87</td>
<td>105</td>
<td>18.51</td>
<td>23.97</td>
</tr>
<tr>
<td>Vicksburg</td>
<td>91</td>
<td>69</td>
<td>13</td>
<td>17</td>
<td>14.29</td>
<td>24.64</td>
</tr>
<tr>
<td>Total</td>
<td>1,957</td>
<td>1,758</td>
<td>722</td>
<td>538</td>
<td>36.89</td>
<td>30.60</td>
</tr>
</tbody>
</table>

Note. Dropout data for winter semester are based on data collected at the end of the study period, not the end of the semester.

was 22 years old, and the mode for age was 19 years old. The standard deviation was 10.326. The range was 18-65 years old. For the control group, the mean age was 26.87 years old; the median age, mode, and range were the same as the total sample population. For the treatment group, the mean age was 24.78 years old, the median age was 22 years old, and the mode for age was 18 years old. The range for the treatment group was 18-48 years old.
Table 6
Sample Population Data by Age

<table>
<thead>
<tr>
<th>Population</th>
<th>n</th>
<th>16-24</th>
<th>25-44</th>
<th>45-59</th>
<th>60+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>79</td>
<td>47</td>
<td>25</td>
<td>5</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>59.49</td>
<td>31.65</td>
<td>6.33</td>
<td>2.53</td>
<td>100.00</td>
</tr>
<tr>
<td>Treatment</td>
<td>32</td>
<td>21</td>
<td>9</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>65.63</td>
<td>28.13</td>
<td>6.25</td>
<td>0.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Subtotal</td>
<td>111</td>
<td>68</td>
<td>34</td>
<td>7</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>61.26</td>
<td>30.63</td>
<td>6.31</td>
<td>1.80</td>
<td>100.00</td>
</tr>
<tr>
<td>Nonparticipating</td>
<td>31</td>
<td>16</td>
<td>11</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>51.61</td>
<td>35.48</td>
<td>9.68</td>
<td>3.23</td>
<td>100.00</td>
</tr>
<tr>
<td>Total</td>
<td>142</td>
<td>84</td>
<td>45</td>
<td>10</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>59.15</td>
<td>31.69</td>
<td>7.04</td>
<td>2.11</td>
<td>99.99a</td>
</tr>
</tbody>
</table>

*aDoes not total 100.00% because of rounding off.

To test the hypothesis that students under the age of 24 were more likely to dropout than students over the age of 24, the chi-square test was computed for the total population, \( \chi^2(1, N = 111) = .0011, p < .05 \), and for the control group, \( \chi^2(1, n = 79) = 0.23658, p < .05 \). Fisher's exact test was computed for the treatment group, \( \chi^2(1, n = 32) = 1.720, p < .05 \). At an alpha level of
.05, the results were: total = .97338, control group = .62669, and treatment group = .37500. The data did not support a significant relationship between age and dropout status.

Table 7 shows the results of the analysis of variance (ANOVA) which was computed for the relationship between the ages of dropouts and persisters. For the total sample \( N = 111 \), the mean age of dropouts was 24.222 with a standard deviation of 6.6505 and a range of 18-42 years old. The mean age of persisters was 27.253 with a standard deviation of 11.6004 and a range of 18-65 years old. Although the mean age of persisters tended to be greater than dropouts, the difference was not significant. Since both groups had a mean age greater than 24 years old, no inference can be made about the relationship between age and dropout status.

Table 7
Summary of Analysis of Variance of Age for Mentored and Nonmentored Groups

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>223.4830</td>
<td>1</td>
<td>2.1171</td>
<td>.1485</td>
</tr>
</tbody>
</table>

The Relationship Between Sex and Dropout Status

Table 8 displays the numbers of males and females and their respective dropout rates. In the total population of \( N = 111 \), 60 (54.05%) were male and 51 (45.95%) were female. The standard deviation was .501. Males were more likely to dropout than females;
38.3% of the males dropped compared to 25.49% of the females. In the control group, 52.27% of the males were classified as dropouts and 34.29% of the females were classified as dropouts. In the treatment group, no males were classified as dropouts and only one female (6.25%) was classified as a dropout.

Table 8
Dropout Data by Sex

<table>
<thead>
<tr>
<th>Group</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dropouts</td>
<td>23</td>
<td>52.27</td>
<td>12</td>
</tr>
<tr>
<td>Persisters</td>
<td>21</td>
<td>47.73</td>
<td>23</td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dropouts</td>
<td>0</td>
<td>0.00</td>
<td>1</td>
</tr>
<tr>
<td>Persisters</td>
<td>16</td>
<td>100.00</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dropouts</td>
<td>23</td>
<td>38.33</td>
<td>13</td>
</tr>
<tr>
<td>Persisters</td>
<td>37</td>
<td>61.66</td>
<td>38</td>
</tr>
</tbody>
</table>

The chi-square test for the total sample, $\chi^2(1, N = 111) = 2.075, p < .05$, and for the control group, $\chi^2(1, n = 79) = 2.556, p < .05$, showed no significant relationship between sex and dropout status at an alpha level of .05: total sample = .14973, control group = .10988. The Fisher's exact test for the treatment group, $\chi^2(1, n = 32) = 1.032, p < .05$, showed no significant relationship between sex and dropout status at 0.500 for the one-tail test and
1.000 for the two-tail test. The data did not support a relationship between sex and dropout status.

The Relationship of Ethnic Origin to Dropout Status

Table 9 shows the numbers of subjects by ethnic origin. In order to conduct the necessary statistical procedures, all ethnic categories other than White were collapsed into a non-White category. A comparison was also made between Blacks and Whites as a subpopulation of the total group.

Of the 111 subjects, 1 (0.90%) was an American Indian, 35 (31.53%) were Black, none were Oriental, 5 (4.50%) were Latin American, and 70 (63.06%) were White and all other. The total non-White population was 36.94%. The standard deviation was 1.411. Of the 79 subjects in the control group, 1 (1.26%) was American Indian, 33 (41.28%) were Black, none were Oriental, 3 (3.80%) were Latin American, and 41 (53.16%) were White and all other. The total non-White population of the control group was 46.84%. Of the 32 subjects in the treatment group, none were American Indian, 2 (6.25%) were Black, none were Oriental, 2 (6.25%) were Latin American, and 28 (87.50%) were White and all other. The total non-White population of the treatment group was 12.50%.

When the 31 nonparticipating treatment group subjects are included (n = 63), the sample becomes more representative of the total Kalamazoo County Adult Education population (see Table 1). In the nonparticipating treatment group, 1 (3.22%) was American Indian, 3 (9.68%) were Black, 1 (3.22%) was Oriental, 1 (3.22%) was Latin
Table 9
Sample Population by Ethnic Origin

<table>
<thead>
<tr>
<th>Status</th>
<th>Non-White not Black</th>
<th>Black</th>
<th>Total Non-White&lt;sup&gt;a&lt;/sup&gt;</th>
<th>White</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dropouts</td>
<td>2</td>
<td>5.71</td>
<td>18</td>
<td>51.43</td>
<td>20</td>
</tr>
<tr>
<td>Persisters</td>
<td>2</td>
<td>4.55</td>
<td>15</td>
<td>34.09</td>
<td>17</td>
</tr>
<tr>
<td>Subtotal</td>
<td>4</td>
<td>5.06</td>
<td>33</td>
<td>41.77</td>
<td>37</td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dropouts</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>Persisters</td>
<td>2</td>
<td>6.45</td>
<td>2</td>
<td>6.45</td>
<td>4</td>
</tr>
<tr>
<td>Subtotal</td>
<td>2</td>
<td>6.25</td>
<td>2</td>
<td>6.25</td>
<td>4</td>
</tr>
<tr>
<td>Total sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dropouts</td>
<td>2</td>
<td>5.56</td>
<td>18</td>
<td>50.00</td>
<td>20</td>
</tr>
<tr>
<td>Persisters</td>
<td>4</td>
<td>5.33</td>
<td>17</td>
<td>22.67</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>5.41</td>
<td>35</td>
<td>31.53</td>
<td>41</td>
</tr>
</tbody>
</table>

<sup>a</sup>Includes American Indian, Oriental/Pacific Islander, Latin American, and Black.
American, and 25 (80.65%) were White and all other. The total non-
White population for the nonparticipating treatment group was
19.35%.

When the ethnic categories for the total population were col-
lapsed into non-White and White for statistical purposes, 48.78% of
the non-White subjects and 22.86% of the White subjects were classi-
fied as dropouts. Non-Whites accounted for 55.56% of the total
dropouts. Blacks experienced a dropout rate of 51.43% and accounted
for 50% of the total dropouts. The overall dropout rate was 32.43%.

To test the hypothesis that non-Whites were more likely to drop
than Whites, the chi-square test was computed for the total popula-
tion, $\chi^2(3, N = 111) = 11.128, p < .05$, and the control group, $\chi^2(1,
N = 79) = 2.681, p < .05$. Fisher's exact test was computed for the
treatment group, $\chi^2(2, n = 32) = 0.147, p < .05$. At an alpha level
of .05, the results were: .0032 for the total population, .102 for
the control group, and .9289 for the treatment group. The data
indicate that non-Whites were more likely to drop out than Whites
for the total population. The data did not support a relationship
between ethnic origin and dropout status for the control or treat-
ment groups.

The Relationship Between Employment
Status and Dropout Status

Table 10 shows the figures for the employment status of the
total sample, the control group, and the treatment group. Complete
data on the employment status of the total sample were not
available. Of the 111 subjects, data were only available for 50 subjects: 23 in the control group and 27 in the treatment group. The lack of data on the other 61 subjects makes analysis of the relationship between employment status and dropout status unreliable.

Table 10
Sample Population Employment Status Data

<table>
<thead>
<tr>
<th>Group</th>
<th>Employed</th>
<th>Not employed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dropouts</td>
<td>2</td>
<td>28.57</td>
<td>5</td>
</tr>
<tr>
<td>Persisters</td>
<td>2</td>
<td>12.50</td>
<td>14</td>
</tr>
<tr>
<td>Subtotal</td>
<td>4</td>
<td>17.39</td>
<td>19</td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dropouts</td>
<td>0</td>
<td>0.00</td>
<td>1</td>
</tr>
<tr>
<td>Persisters</td>
<td>14</td>
<td>53.85</td>
<td>12</td>
</tr>
<tr>
<td>Subtotal</td>
<td>14</td>
<td>51.85</td>
<td>13</td>
</tr>
<tr>
<td>Total sample</td>
<td>18</td>
<td>36.00</td>
<td>32</td>
</tr>
<tr>
<td>Total unknown</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 111

Of the 50 subjects for whom data were available in the total sample, 32 (64.00%) were unemployed and 18 (36.00%) were employed.
Six (18.75%) of the unemployed accounted for 75.00% of the total dropouts in this subpopulation of the total sample. Two (11.11%) of the employed accounted for 25% of the dropouts in the same subpopulation.

In the control group for whom data were available, 19 (82.61%) were unemployed and 4 (17.39%) were employed. Five (26.32%) of the unemployed accounted for 71.43% of the total dropouts in this subpopulation of the control group. In the treatment group for whom data were available, 13 (48.15%) were unemployed and 14 (51.85%) were employed. One (7.69%) of the unemployed accounted for 100% of the total dropouts for this subpopulation of the treatment group.

In order to test the relationship between employment status and dropout status, Fisher's exact test was computed for the total sample, $\chi^2(1, N = 50) = 0.500, p < .05$; for the control group, $\chi^2(1, n = 23) = 0.875, p < .05$; and for the treatment group, $\chi^2(1, n = 27) = 1.118, p < .05$. At an alpha level of .05, the results were: .39069 for the total sample, .35178 for the control group, and .48148 for the treatment group. The data did not support a significant relationship between employment status and dropout status.

Data on the Nonparticipating Treatment Group

Thirty-one potential subjects for the treatment group either dropped during the first 2 weeks of the semester before being matched with a mentor or refused to participate by signing and returning the necessary release form. Table 11 shows the data on sex, age, ethnic origin, and employment status for the nonparticipating group.
### Table 11
Nonparticipating Treatment Group Sample

#### Ethnic origin

<table>
<thead>
<tr>
<th>Group</th>
<th>Dropouts</th>
<th>Persisters</th>
<th>Total sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Non-White, not Black</td>
<td>1</td>
<td>4.76</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>14.29</td>
<td>0</td>
</tr>
<tr>
<td>Total non-White</td>
<td>4</td>
<td>19.05</td>
<td>2</td>
</tr>
<tr>
<td>White</td>
<td>17</td>
<td>80.95</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>100.00</td>
<td>10</td>
</tr>
</tbody>
</table>

#### Age and sex

<table>
<thead>
<tr>
<th>Group</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>n</th>
<th>%</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-24</td>
<td>6</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td>53.85</td>
<td>10</td>
<td>55.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-44</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>46.15</td>
<td>6</td>
<td>33.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45-59</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>1</td>
<td>5.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0.00</td>
<td>1</td>
<td>5.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>12</td>
<td>4</td>
<td>6</td>
<td>13</td>
<td>41.94</td>
<td>18</td>
<td>58.06</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Table 11--Continued

<table>
<thead>
<tr>
<th>Group</th>
<th>Drops</th>
<th>Persisters</th>
<th>Total sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Employed</td>
<td>11</td>
<td>52.38</td>
<td>5</td>
</tr>
<tr>
<td>Not employed</td>
<td>6</td>
<td>28.57</td>
<td>4</td>
</tr>
<tr>
<td>Unknown</td>
<td>4</td>
<td>19.05</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>100.00</td>
<td>10</td>
</tr>
</tbody>
</table>

Of the 31 students in the nonparticipating group, 13 (41.94%) were male and 18 (58.06%) were female. The mean age was 26.45±16 years old, the standard deviation was 10.029, the median age was 22 years old, and the mode for age was 20 years old. One student (3.23%) was an American Indian, 3 (9.68%) were Black, 1 (3.23%) was Oriental, 1 (3.23%) was Latin American, and 25 (80.65%) were White and all other. Sixteen (51.61%) of the nonparticipating group were employed, 10 (32.26%) were unemployed, and the employment status of 5 (16.13%) was unknown. Of the 31 students in the nonparticipating group, 21 (67.74%) were classified as dropouts and 10 (32.26%) were classified as persisters.

When the nonparticipating treatment group was compared to the participating treatment group, statistical analysis using the chi-square test, \( \chi^2(1, n = 63) = 31.266, p < .05 \), showed significant
difference (.0000) in dropout rates between the two groups. Chi-square analysis of sex, $X^2(1, n = 63) = 0.412, p < .05$; ethnic origin, $X^2(1, n = 63) = 0.554, p < .05$; and employment status, $X^2(1, n = 63) = 0.506, p < .05$, showed no significance difference between the nonparticipating and participating treatment groups at an alpha level of .05: sex = .51084, ethnic origin = .34522 (Fisher's exact test), and employment = .47690.

Two-tailed t tests were calculated for age differences between the two groups. The t test for the pooled variance estimate with 61 degrees of freedom was not significant (.473) at an alpha level of .05. The t test for the separate variance estimate with 58.08 degrees of freedom was also not significant (.474) at an alpha level of .05. The data did not support a significant difference in age between the participating and nonparticipating treatment groups.

Summary

A total sample population of $N = 142$ was derived according to the criteria stated in Chapter III. Of the 142, 31 could not be included in the data analysis for the treatment group used to test the research hypotheses because they either dropped out prior to being assigned a peer mentor or refused to participate by signing and returning the necessary release form. The adjusted sample of $n = 111$ was used for data analysis purposes to test the research hypotheses. The sample appeared to be representative of the adult education population of Kalamazoo County and with minor exceptions to the adult education population of the state of Michigan for sex,
age, and ethnic origin.

Thirty-six (32.43%) of the total population were classified as dropouts: 35 in the control group and 1 in the treatment group. The overall dropout rate appeared to be in the normal range of 30.60% (winter 1991, first 8 weeks) to 36.89% (fall 1990). The chi-square test for significance was used for each of the variables: dropout status, age, sex, ethnic origin, and employment status. Fisher's exact test was used when frequencies per cell were less than five. An ANOVA was calculated for age as well as mean, mode, median, range, and standard deviation.

The statistical analysis supported a significance difference in the dropout rates between the treatment and control group with those receiving peer mentoring to be less likely to drop out. No significant relationship was found between dropouts in the control and treatment groups for the variables of sex, age, and employment status. A significant difference was found in the dropout rate between Whites and non-Whites in the total sample with the latter being more likely to dropout than the former. No significant relationship between sex, age, ethnic origin, and employment status could be found between the participating and nonparticipating treatment groups. A significant difference in dropout rates was found between the participating and nonparticipating treatment groups with those receiving peer mentoring to be less likely to dropout.

A discussion of the results of the data analysis in relationship to each of the original research hypotheses is presented in Chapter V.
CHAPTER V

DISCUSSION

Introduction

Chapter IV outlines the data analysis used in this experimental study to address the question of the existence of a relationship between peer mentoring and the dropout rate in adult high school completion programs. After a discussion about cautions on interpreting the data, a discussion on the conclusions which may be derived from the data are formatted according to the research questions addressed:

1. Do adults enrolled in adult high school completion programs who are assigned a peer mentor have a significantly different dropout rate than adults who do not have an assigned peer mentor?

2. Do adults who have an assigned peer mentor who drop out of an adult high school completion program differ significantly in age, sex, ethnic origin, or employment status from dropouts who do not have an assigned peer mentor?

This discussion of the data and their implications for adult education is followed by recommendations and a conclusion.

General Cautions About Data Interpretation

As with most research, this study encountered several limitations which may have influenced the results. The results are
discussed with these limitations and their possible influences in mind. General limitations relative to population sampling and size and the complexity of psychological/sociological research are discussed here. Specific limitations relative to the separate research questions are discussed with the interpretation of data for those questions.

Although the general population and the adult education population of Kalamazoo County are relatively representative of the state of Michigan, the use of the readily accessible population as opposed to true random selection poses minor limitations on this study. The findings of this study may be unique to Kalamazoo County where specific practices in adult education may vary somewhat from the state in general. At best, the findings of this study may be unique to the state of Michigan which has adult education programming structures which are not representative of the United States in general. The majority of the states only have adult basic education (ABE) and general education development (GED) as opposed to the Michigan model which has separate adult high school completion programs funded through state aid the same as regular K-12 education.

Sampling size is also of concern as a limitation in this study. Because of assignment of entire programs to the treatment and control groups, identical sizes were not possible. The major limitation was the reduction in size of the treatment group from 63 to 32 because of voluntary participation. Decreasing the sample size decreased the power of the statistical tests (Hinkle, Wiersma, & Jurs, 1988). The representativeness of the sample as demonstrated
in Chapter IV somewhat ameliorates the size limit according to Ary, Jacobs, and Razavieh (1985) and meets their minimum criteria of 30 per group.

The final general limitation of specific concern is with the complexity of all psychological and sociologic research in general and educational research in particular. An attempt was made to control the interaction of personological variables and the treatment effect through matched assignment of entire programs to the treatment and control groups. Explicit definitions of the independent variables were also employed in an effort to control threats to validity. Only one treatment, peer mentoring, was introduced over a controlled length of time when dropout rates had been shown to be the highest. Because the dropout phenomena and the mentoring concept are both complex issues involving a multitude of variables, it was necessary to assume that all sample subjects were subject to the same extraneous, psychological, and sociological variables. Such assumptions limit the generalizability of this and similar studies but educational research would not be possible without some assumptions in the research design.

This study did not address causation of dropout in adult education, but sought the existence of a relationship between an intervention strategy and dropout rate. Because the variables involved in dropping out are numerous and germane to each individual person and program, significant findings of this study can only be used to guide program planning in other adult education settings. Additional data and research can provide information needed to make
sound decisions in instructional and administrative management of programs for adults.

Relationship Between Peer Mentoring and Dropout Status

The data analysis in Chapter IV supports a significant relationship between peer mentoring and dropout rate in adult high school completion programs. The treatment group which received peer mentoring had significantly fewer dropouts than the control group which did not receive peer mentoring. Caution must be exercised in generalizing the results of this study to other populations because of the original concerns for the ecological threats to external validity, primarily the Hawthorne Effect and the novelty and disruption effects. Although the latter were controlled somewhat by selecting, matching, and assigning entire programs to the treatment and control groups, subjects and mentors in the treatment group were aware that the Peer Mentor Program was part of a research study.

The Hawthorne Effect is more problematical because of the requirement by the Human Subjects Institutional Review Board that subjects in the treatment group be informed that they were participating in a research project and acknowledge consent by signing a release form. Self-selection into the study may have influenced the results by including subjects who were predisposed to persist without the peer mentoring. The loss of approximately half of the treatment group to nonconsent affected sample size as well as reliability and validity through the possible self-selection of subjects predisposed to dropout to the nonparticipating treatment group.
Replication of the study with continued data collection for similar populations over a period of time would serve to resolve the limitations of the current study.

The implications for adult education program planning and delivery are significant. Following Merriam's (1983) advice to incorporate mentoring into planned intervention strategies of adults, this research study has shown peer mentoring to be an effective deterrent to dropping out of adult high school completion programs. It also appears to support previous findings of Oestersicher (1985) by uniting academic integration with the institution and social integration with peers, of Bova (1985) and Bova and Phillips (1984) by providing holistic and individualized approaches to learning, of Scanlan and Darkenwald (1984) by minimizing barriers, and of Boshier (1971a, 1971b, 1972, 1973, 1977) by minimizing feelings of incongruence between the individual and the educational environment.

The implications for mentor theory and research are not as evident. The term mentor remains elusive (Fagan, 1988), yet students who served as peer mentors appeared to understand their function as a role model, guide, coach, and confidant (Bolton, 1980; Levinson et al., 1978) as demonstrated in their responses during training and in observations by staff members. When the mentor is substituted for the administrator in the Getzels and Guba (1957) social systems model, then it would appear that satisfaction with adult education as demonstrated by persistence was the outcome of the peer mentor's mediation between the expectations of the institution and the needs of the new student.
This research study supported Gray's (1988) assertion that planned mentoring programs and forced matching of mentors and mentees can be effective. The study also appeared to confirm Beaudin's (1982) summary of Knowles's theory that adult education must address real needs of the adult learner, create a supportive environment, minimize problems and barriers, and communicate expectations. Peer mentors appeared to have accomplished these tasks. Mentoring is at once a complex, interactive process (Carmin, 1988) which serves as a socialization mechanism (Gray, 1985) and a simple everyday phenomena (Darling, 1986).

Relationship Between Peer Mentoring and Demographic Variables

Because only one person who received peer mentoring was classified as a dropout from the treatment group, no inferences can be made about the relationship between peer mentoring and age, sex, ethnic origin, and employment status for the treatment group. No significant relationship was found within the control group between dropout status and age, sex, ethnic origin, and employment status. No significant relationship was found for the total population between dropout and age, sex, and employment status. These findings are consistent with previous research (Bova, 1985; Diekhoff & Diekhoff, 1984; Holt, 1984; Leonard et al., 1986; Russ-Eft & McLaughlin, 1981; Sainty, 1971) which shows inconsistent and contradictory data on demographic variables relative to dropout in adult education settings. The implication for adult education program
planning and delivery is that adult educators must continue to provide for the differing needs of all ages, sexes, and employment situations through flexible scheduling, multiple locations, child care, transportation assistance, and other common support services.

For the total population, there was a significant relationship between ethnic origin and dropout status with non-Whites being more likely to dropout than Whites. This finding is consistent with those of Diekhoff and Diekhoff (1984) and Bova (1985). The implication for adult educators is that non-Whites may need more support services to persist in an educational environment which has been established and perpetuated by Whites based upon a culture and values system which may differ from that which is familiar to non-Whites. Multicultural sensitivity is needed in both program planning and delivery. Because non-Whites also comprise a larger percentage of the unemployed and disadvantaged, adult education programs need to continue to improve communications with other agencies which serve this population such as social services, human services, and employment agencies.

**Recommendations**

In addition to the recommendations enumerated under the discussion of the specific research questions, several other practical and experimental related recommendations are suggested by this study. Practical considerations include the process of mentor training, mentee recruitment, and assignment. Experimental considerations include extension to other populations and other research designs.
and data collection methods.

The process of selecting potential mentors and mentees and of training them can be refined from the original process used in this study. First, each program which chooses to use the peer mentoring approach should develop a pool of potential volunteer mentors so that new students or other students identified at risk could be matched as soon as a semester begins. This would increase the likelihood of new or at risk students persisting. Particular attention should be given to recruiting non-White mentors since this group was most at risk of dropping out. Next, consideration should be given to including mentees in the initial orientation/training session with the mentors and allowing participants to match themselves. Although no mismatches were reported in the treatment group, perhaps some of the potential subjects in the treatment group who refused to participate may have felt more comfortable if they had been allowed to meet their potential mentor in a social atmosphere prior to assignment and if they had been part of the orientation and training process. Finally, joint training would enhance the effectiveness of the creative problem-solving process by both parties being trained in its use.

In order to test the reliability of the results of this study, peer mentoring should be extended to other populations. This study was only concerned with adult high school completion students over the age of 18 who had never been enrolled in adult education prior to this study. Future research could extend the target population to include adult basic education students (ABE), general education
development students (GED), alternative education students, transfer students from other programs, and previously enrolled students who have dropped out from adult education programs in the past. Additional research could also be conducted on peer mentoring at the postsecondary level particularly with students whom previous research or data have shown to be high risks for dropping out. With adaptations to the design, it may be possible to replicate this study with adult vocational education students, Job Training and Partnership Act (JTPA) participants, and other similar adult training programs. The accumulation of data from a variety of populations on the effectiveness of peer mentoring in reducing the dropout rate would serve to support or refute the findings of this study.

This experimental study focused on the collection of quantitative data. Future research could be conducted both experimentally and ex post facto to gather qualitative data. A variety of methods, such as case studies, interviews, and follow-up surveys, could be used to gather information about attitudes towards the mentoring experience by both the mentors and mentees. Although the mentor logs were not used as part of the data analysis in this study, future research could collect and analyze such data to determine the optimum number of contacts and the most effective types of activities which successful mentors use to retain mentees. Another possible avenue of additional research could be to use pre- and posttests on both mentors and mentees to measure changes in attitude or satisfaction.
Among the questions to be addressed in future research are:

1. Is peer mentoring effective in a variety of populations?
If not, with which group(s) is it most effective?

2. With what age group is peer mentoring most effective?

3. With what ethnic groups is peer mentoring most effective?

4. Is peer mentoring more effective with the employed or unemployed?

5. Is peer mentoring more effective with those on public assistance or those not on public assistance?

6. Is peer mentoring more effective with males or females?

7. What are the positive/negative effects of peer mentoring on the mentor and/or mentee?

8. What frequency of contacts is optimal for preventing dropouts?

9. What types of activities are most beneficial in the mentoring process?

Additional research and data can be used to refine the concept of peer mentoring and its relationship to dropout in adult education.

Conclusion

This research study has been relatively successful in fulfilling Courtney's (1986) requirements for a research question by illuminating different areas of knowledge and by generating implications for new issues relative to the adult education dropout phenomenon. Above all, it has practical application and contributes to the
understanding of dropout prevention in adult education thus addressing Rachal's (1986) criteria for a research question.

This research study has been significant for adult educators by providing a research based method for reducing the dropout rate in adult high school completion programs with possible applications to other populations. The peer mentor approach demonstrated not only its effectiveness but was relatively easy to develop and administer and did not add appreciably to staffing or budget needs. It also appeared to enhance the self-esteem of the mentors, based upon personal anecdotes and direct observation by staff members. By utilizing the available human resources, current students as peer mentors, this research study provided a new support service which was feasible in both large and small programs. According to Lewis (1984), "Adult educators should make a serious effort to address the issue of institutional and personal support systems in order to increase success ratios and improve the persistence patterns of all adult basic education students" (p. 77). This peer mentor study appears to have met this challenge.

As with all social science research, this study has limitations. First, as Mezirow (1971) claimed, there is an absence of adult education theory which is practical and useful. It has been necessary to draw from philosophical, psychological, and sociological theory as well as pedagogical and andragogical conceptual foundations. Although Courtney (1986) may have gone too far when he asserted that "research is not essential to adult education since science produces and creates knowledge and education socializes and
civilizes people by use of knowledge" (p. 163), it still behooves adult education researchers to remember that "the education process cannot be separated from its social context" (Rubenson, 1982, p. 60). While acknowledging that this study shared common problems in adult education research (Long, Hiemstra, & Associates, 1980), including multiple variables, lack of agreement on properties of adults and adult education, the question of ethics in manipulating people, and normal sampling problems, the scientific method of research should not be abandoned because it lacks perfection. "The scientific method of inquiry is not infallible, nor does it lead to absolute certainty; but it is more reliable than some other means of answering questions" (Long et al., 1980, p. 6). It cannot be said with absolute certainty that peer mentoring reduces the dropout rate in adult high school completion programs, but the scientific method of inquiry attempted in this research study lends credibility to the assertion that it is an effective strategy in doing so.
Appendix A

Data Collection Form
Peer Mentor Study  
Data Collection Form

<table>
<thead>
<tr>
<th>Program Code</th>
<th>Student Code</th>
<th>Sex</th>
<th>Age</th>
<th>Ethnic Origin</th>
<th>Employed</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Comstock</td>
<td>1.1, 1.2, etc.</td>
<td>1</td>
<td>23</td>
<td>American Indian</td>
<td></td>
<td>1 1 1 0 1 0 0 1</td>
</tr>
<tr>
<td>2 - Climax-Scotts</td>
<td>1.2 and so on</td>
<td></td>
<td></td>
<td>Black</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - Galesburg-Augusta</td>
<td>Sex</td>
<td></td>
<td></td>
<td>Oriental</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 - Gull Lake</td>
<td></td>
<td></td>
<td></td>
<td>Latin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 - Kalamazoo</td>
<td></td>
<td>0</td>
<td></td>
<td>American</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 - Portage</td>
<td></td>
<td>1 = male</td>
<td></td>
<td>all others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 - Parchment</td>
<td></td>
<td>1 = female</td>
<td></td>
<td>(These codes correspond to state and federal codes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 - Vicksburg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data will be collected in coded form as indicated below. A sample data entry would look like this:

1 1.1 1 23 5 0 1 1 0 1 0 0 1

Program Codes
1 - Comstock
2 - Climax-Scotts
3 - Galesburg-Augusta
4 - Gull Lake
5 - Kalamazoo
6 - Portage
7 - Parchment
8 - Vicksburg

Attendance
0 = no
1 = yes

Employed
0 = no
1 = yes

Age
Actual whole year number

Ethnic Origin
1. American
2. Black
3. Oriental
4. Latin
5. White and all others

Sex
0 = male
1 = female

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Appendix B

Peer Mentor Training Contents
Peer Mentor Training Contents

**Goal:** To prepare peer mentors to serve as role models, problem solvers, and advocates for assigned mentees.

**Objectives:**
1. To provide strategies for effective mentoring.
2. To provide training in creative problem solving.
3. To provide an understanding of role model function.
4. To provide a list of other support services and resources available to the mentor and mentee.

**Strategies for Effective Mentoring:**
1. Attitude of positiveness
2. Valuing
3. Open-mindedness
4. Interrelations
5. Creative Problem Solving
6. Effective communication
7. Discovery
8. Strengths and uniqueness
9. Confidence
10. Awareness
11. Risk-taking
12. Flexibility

**Creative Problem Solving:**
1. Fact-finding: who, why, what, when, where and how.
2. Problem-finding: taking different perspective to state problem.
5. Acceptance-finding: who, why, what, when, where and how.
6. Plan of action

**Role Model Functions:**
1. Good attendance
2. Good study habits
3. Positive attitude
4. Reliability
5. Dependability
6. Reminder that goal is attainable

**Mentor Tasks:**
1. Call absent mentee
2. Assist in problem solving
3. Refer to other resources
4. Listen well

(Note: Strategies for Effective Mentoring and Creative Problem Solving are based upon Mentoring: A voiced scarf by Ruth B. Noller, State University College of Buffalo, 1982.)

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Strategies for Effective Mentoring

**Attitude of Positiveness**

1. Encourage mentee to approach life and goals with enthusiasm and humor.
2. Never put yourself down to others or yourself.
3. Encourage mentee to be accepting of self and others.

**Valuing**

1. Encourage mentee to establish goals and make plans.
2. Encourage mentee to believe in him/herself and his/her goals.
3. Encourage mentee to make good choices based on creative problem solving.

**Open-mindedness**

1. Encourage mentee to keep an open mind to ideas, both his/her own and those of others.
2. Encourage mentee to consider many alternatives before making a decision.

**Interrelations**

1. Encourage mentee to share school related problems.
2. Empathize with mentee's problems.
3. Refer mentee to school administration for serious problems or those with which not comfortable.

**Creative Problem Solving (CPS)**

1. Encourage mentee to use CPS until its automatic.
2. Assist mentee in using CPS.

**Effective Communication**

1. Encourage mentee to be an attentive listener.
2. Encourage mentee to ask questions.
3. Encourage mentee to respond actively.
4. Encourage mentee to consider the opinions of others.
5. Keep the lines of communication open.

**Discovery**

1. Encourage mentee to be an independent thinker.
2. Encourage mentee to learn through inquiry.

**Strengths and Uniqueness**

1. Encourage mentee to recognize and to develop
his/her own assets.
2. Encourage mentee to "be themselves".

Confidence

1. Encourage mentee to develop self-confidence by taking responsibility for his/her own actions.
2. Acknowledge and celebrate successes.
3. Lend moral support when needed.
4. Listen actively to ideas and actions.

Awareness

1. Encourage mentee to be aware of what is going on around him/her.
2. Encourage mentee to make the most of available opportunities.

Risk-Taking

1. Encourage mentee to be an active participant, not a spectator.
2. Encourage mentee to be proactive rather than reactive.

Flexibility

1. Encourage mentee to be flexible/adaptable in attitudes and actions.
2. Encourage mentee to look for alternatives, to see things from different perspectives.

(Based upon Mentoring: A Voiced Scarf by Ruth B. Noller, State University College of Buffale, 1982.)
Appendix C

Mentor's Log Book
Appendix D

Consent Form
I, ______________________________, hereby agree to participate in the Peer Mentor Program being conducted in the ______________________________ Adult Education program. I understand that this is an experimental research project for a doctoral study for a graduate student at Western Michigan University. This study will be conducted during the first eight weeks of the Winter, 1991 semester. The purpose of the study is to gather information on the effectiveness of a peer mentor program.

Participants in the study will be assigned a Peer Mentor who will assist new students in adjusting to their Adult Education program. No risks are known for participants; benefits which may be anticipated include an easier adjustment to the Adult High School Completion program and assistance in solving problems related to pursuing a high school diploma.

I further authorize the release of the following information for research purposes only:

- Sex
- Age
- Ethnic Origin
- Employment status
- Attendance for the duration of the study

I understand that my name or other personal identifying information will not be recorded or released to anyone other than the researcher involved or staff of the ______________________________ Adult Education program who have legal access to my student records. All information collected in the study will be in code form and will not be able to be traced back to individual participants.

I understand that I may withdraw my consent to participate in this study at any time during the study (the first eight weeks of the Winter, 1991 semester) without any effect upon my status in the Adult Education program.

Signature ______________________________  Date ______________________________

Any questions or concerns about the Peer Mentor program at any time during the study should be directed to:

Jo Ann Pastor, Director
Vicksburg Adult Education
301 So. Kalamazoo Ave.
Vicksburg, MI 49097
Phone No. 649-0550
Appendix E

Approval Letter From Human Subjects
Institutional Review Board
Date: February 6, 1991
To: Jo Ann Pastor
From: Mary Anne Bunda, Chair
Re: HSB IRB Project Number 91-01-03

This letter will serve as confirmation that your research protocol, "The Relationship between a Peer Mentoring Program and the Dropout Rate in an Adult High School Completion Program" (as revised), has been approved after full review by the HSB IRB. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the approval application.

You must seek reapproval for any change in this design. You must also seek reapproval if the project extends beyond the termination date.

The Board wishes you success in the pursuit of your research goals.

xc: Charles Warfield, Educational Leadership

Approval Termination: February 6, 1992
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