

ASSESSING PERSISTENCE IN
DISABLED COMMUNITY
COLLEGE STUDENTS

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Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF PHILOSOPHY
July, 1996

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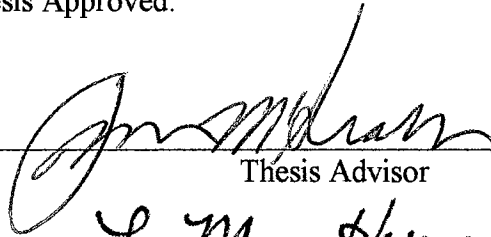
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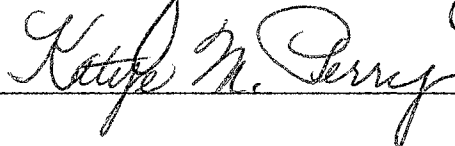
Thesis Approved:



Thesis Advisor









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ACKNOWLEDGMENTS

My journey in life has been filled with great heights, low points and lulls before the storms. Only someone who has traveled a similar terrain would begin to comprehend both the joy and heartache one experiences along the path. No one can undertake such a journey without the assistance of teachers, guides and supporting friends. I have been fortunate to have met such individuals. Without their assistance, this project and my education would not have been possible. As I prepare to finish this part of my journey, I would like to thank those who have assisted thus far. All those in my department at Oklahoma State University, thank you. Additionally, my sincere appreciation goes to my advisor Dr. Dobson for her belief in me during difficult times. To Dr. Seals a special thanks for stepping as my advisor, and my cheering section. My sincere appreciation extends to Dr. Perry for her expertise and gift of guidance. In addition, I would like to thank Dr. Carlozzi and Dr. Hynson for their encouragement, expertise and friendship.

I would like to express my special gratitude to my family members. Without the encouragement of my mother, Mary, my father, Robert, and my sister, Cindy this research could not have come to fruition. I would like to thank my children Brent and Evan for their support, understanding and encouragement. Their patience and tolerance has been greatly appreciated. To Loni, Jeri, Pam, Mark and Jeni, your understanding, support, assistance, expertise and encouragement made this project a reality.

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CHAPTER I

INTRODUCTION

Today, obtaining a college education is so common-place one might tend to forget that once, obtaining a college degree was reserved for only an elite few. The expansion of state supported colleges provided the opportunity for virtually all individuals to attend college. During the 1970's, higher education institutions began to experience an increase in the number of students enrolling in college (National Center for Educational Statistics, 1987). When enrollment numbers were large and increasing, universities did not focus on attrition rate or the number of students who did not re-enroll in school. Instead, most focused on how to best meet the demands of the increasing student population. However, during the 1980's a factor began to impact colleges, high-school enrollment declined (Bean & Metzner, 1985; Noel, Levitz, Saluri & Associates, 1985). Consequently, fewer freshman students were applying and attending institutions of higher education. In addition, a number of students were not re-enrolling in college. With costs of providing a quality education steadily increasing and the enrollment trends changing, administrators of colleges became concerned about the loss of revenues generated by student enrollment fees (Hossler, Bean & Associates, 1990).

To ensure desired student enrollment census, colleges began to develop enrollment management teams in the late 1980's. The goal of these multi-departmental teams was to

retain college students. In general, retaining students is less expensive for colleges than recruiting new students to replace the ones who leave (Bean & Metzner, 1985; Hossler, Bean & Associates, 1990; Lenning, Beal & Sauer, 1980; Noel, Levitz, Saluri, & Associates, 1985; Pascarella & Terenzini, 1991).

Today, struggles with student enrollment continues. Instead of increasing student populations, universities as recently as 1991 reported an average growth rate of only 1.1 percent. In contrast, other universities struggle to maintain their census, and at other universities student census is declining (Clotfelter, Ehrenberg, Gentz & Siegfried, 1991).

The study of retention has continued through the 1990's. While some questions of why students leave college go unanswered, some trends and patterns have emerged from the research findings. For example, leaving college is a multi-factor event that occurs over time. In addition, the type of factors that determine whether a student stays or leaves college differs according to the institutional type such as 2-year institutions versus 4-year institutions (Astin, 1980; Bean, 1980; Bean & Metzner, 1985; Cabrera, Castaneda, Nora, & Hengstler, 1992; Cabrera, Nora, & Castaneda, 1993).

Research findings have indicated some key factors that influence the decision to stay in school regardless of institutional types (Allen, 1994; Bean & Metzner, 1985; Hossler, Bean & Assoc., 1990; Noel et al., 1985; Pascarella & Terenzini, 1991). High school GPA, and standardized test scores are thought to be predictors of college performance (Astin, 1993; Pascarella & Terenzini, 1991). As a result, universities employ these measures to screen potential students. They then can identify students who meet their standards for

potential acceptance. Consequently, this type of selection process helps keep the attrition rates lower, while maintaining a stable student census. In contrast, the virtual open-door policy of community colleges prevents them from screening only the academically advanced students. In general, this policy results in increases in the number of students who do not return to college the following semester or year due to poor academic performance (Hossler, Bean & Assoc., 1990). GPA and financial support of student loans, grants, and family funding are thought to be consistent factors that influence persistence. In addition, GPA and financial factors can indicate students "at risk" of leaving college. However, some students continue to leave that do not have these "risk" factors (Allen, 1994; Bean & Metzner, 1985; Hossler, Bean & Assoc., 1990; Noel, 1985; Pascarella & Terenzini, 1991).

Community Colleges

A retention issue common to community colleges is the diversity of the student population. The characteristics of the student population at community colleges are not similar to four-year institutions (Bean & Metzner, 1985). For example, the average age of community college students is over the "traditional" age of 21. In addition, it appears within a community college a collection of sub-groups exist. In general, the student population at community colleges is not homogeneous on numerous factors such as age, reason for attending, expectations, needs enrollment status, and financial resource. These varying expectations and needs relate to how the college can provide services that promote persistence in their students (Bean & Metzner, 1985).

Retention Models

Given the inability to screen out "at risk" students, and the heterogeneous student population at community colleges, a different model of retention or attrition has been proposed by Bean and Metzner (1985). This model represent modification to previous models to further explain why community college students leave school (Spady, 1970; Tinto, 1975). Bean and Metzner (1985) developed a Conceptual Model of Nontraditional Undergraduate Student Attrition, which emphasizes the importance of external factors, such as the need to work, family demands, on persistence in community college students. More recently, Cabrera et al. (1992), proposed an Integrated Model (IRM). Cabrera et al. (1992) merged Tinto's (1975) Student Integrated Model (SIM) with Bean and Metzner's (1985) Student Attrition Model (SAM), to form the Integrated Retention Model or the IRM (Cabrera et al., 1992). This model brings together the variables that accounted for the most variance in previous models (i.e., Bean & Metzner, 1985; Spady, 1970; Tinto, 1975). The flexibility of this model allows for the variety of influences within the community college population to be captured when persistence is studied, including students with disabilities.

The variables to be included in this study are derived from Cabrera et al. (1992). They include: GPA, encouragement, institutional commitment, social integration, academic integration, goal commitment, institutional commitment, financial attitude, intent to persist (see Figure 2). In addition, any student comments from the qualitative sections of the survey will be related to persistence.

Retention of Disabled Students

The number of college students with disabilities has grown over the past decade. A recent report from U.S. Department of Education (1995) found 6.3% of all college students have a disability. In addition, Henderson (1995) reported that more than 9% or 140,000 of all full-time, first-time college freshman have disabilities. This figure represents a 2.6 percent increase from 1978. Henderson's (1995) figures however, do not include returning students that are classified as freshman or part-time freshman.

The community college involved in this study has experienced a growing rate in the population of students with disabilities. This local trend is supported by the national trend of over 56% of all students with disabilities are at community colleges (Henderson, 1995). With the American with Disabilities Act of 1990 (ADA), Henderson, (1995) predicts that individuals with varying types of disabilities will increasingly enroll in higher education institutions. If indeed 9.2 % of all first-time, full-time, freshman have disabilities and if they were all retained in colleges the number of students with disabilities should be higher than the overall 6.3 % of all post-secondary students reported by the U.S. Department of Education in 1993.

Purpose of The Study

The purpose of this study was to examine the status of the students with disabilities that are enrolled at this community college. In an effort to better understand these students, this study examined specific retention issues in three broad areas: a) descriptive

information, b) comparison local findings with national trends c) determination of specific retention variables that may affect persistence in these students.

Statement of the Problem

What is the status of disabled students at this college, how do local findings compare to national trends and which retention variables influence persistence in students with disabilities?

Research Questions

Due to the lack of current studies on retention of college students with disabilities, this study evaluated the enrollment status of disabled students, and explored the different variables influencing persistence (Cabrera et al., 1992). The research questions for this study were:

Descriptive Data

1. How many students have disabilities at this community college for the Fall 1995 semester?
2. What are the percentages of the different disability types within this population?
3. How does the number of currently enrolled students with disabilities compare to 1994 data?
4. What is the overall retention rate of students with disabilities from the Fall 1995 semester to Spring 1996 semester?

National Trends

5. Has this community college experienced an increase in the number of learning disabled students that is reported nation-wide?

Student Satisfaction Level

6. Overall, are students with disabilities satisfied with the services of this college?
7. Are there specific college services that are not meeting the needs of students with disabilities?

Assessing Retention Variables of Persistence

8. Do any of the following variables distinguish between students who persist and students who do not persist at this college: a) background, b) college attributes or organizational characteristics, c) encouragement from family and college staff, d) financial aid attributes, e) academic integration, f) goal commitment, g) social integration, h) institutional commitment, i) disability, j) intent to persist? In addition, factors from the qualitative data that relates to persistence will be coded into categories to determine if "other" factors influence persistence.

Significance of the Study

Obtaining an undergraduate education is one of the most important activities engaged in by individuals. Specifically, an undergraduate education influences one's economic productivity, social standing, and personal growth (Clotfelter et al., 1991). When a student leaves college, the institution is negatively impacted. However, when a student

does not receive a higher level of education, society is negatively impacted as well. College graduates earned half again as much as high school graduates, and also experienced less unemployment (Clotfelter et al., 1991). A better educated workforce propels the national economy forward, thus enabling the United States to better compete in the world-wide market place (Astin, 1993). To assist in the educational process, assessing the current campus environment, enrollment behavior, student-institution interactions can enhance the likelihood of student success, and persistence (Noel et al., 1985).

To date, there is no documented retention research conducted employing college students with various types of disabilities. Since this population is increasing and predicted to continue to increase more information is needed to guide college administrators, and researchers of persistence (Henderson, 1995).

This study provides the institution with more accurate information about the status of students with disabilities. In addition, this study provides information about which aspects of the institution enhance student persistence, and which organizational characteristics hamper persistence. Hopefully, the data provided by this study can assist the decision making process regarding services provided to these students (Bean & Metzner, 1985).

Definition of Terms

The following definitions are operational terms utilized in this study:

ACT: American College Testing Assessment, a standardized achievement test to evaluate knowledge and predict college performance (Astin, 1993).

Academic Accommodations: Under the Americans with Disabilities Act of 1990 (ADA), which reaffirms the Rehabilitation Act, secondary institutions are required to provide services to persons with disabilities. These services vary from campus to campus however they include: equal access, physical accommodations and academic accommodations of extended test time, oral exams, note takers and tutors.

Attention Deficit Disorder (ADD): This classification has been subsumed under the new diagnosis of attention deficit/hyperactivity disorder (ADHD), predominantly inattentive type in the American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders, (4th ed.) (1994). In this disorder symptoms include prevalent inattention without hyperactivity behavior that persist for more than 6 months.

Attention Deficit/Hyperactivity Disorder (ADHD): A developmental disorder usually diagnosed in childhood or adolescence. The features include a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequent, and severe than is typically observed in individuals at a comparable level of development. There are three subtypes: a) attention-deficit/hyperactivity disorder, combined type, b) attention deficit/hyperactivity disorder, predominantly inattentive type, and c) attention-deficit/hyperactivity disorder, predominantly hyperactive-impulsive type (DSM-IV, 1994).

Attrition: When a college student does not re-enroll in the college (Astin, 1993).

Community College: A higher education institution that offers two years of comprehensive education beyond the high school level, at a comparatively lower cost to the student (Paradise & Long, 1981).

Disabled Student: A college student who has been through a formal diagnostic process by a health care professional and has been diagnosed with a handicap. This condition can be "invisible" for example: learning impairments, health impairments, speech impairments, low vision, or loss of hearing or obvious such as: deafness, blindness, mobility impaired, or physically impaired (Henderson, 1995).

Full Time Student: A college student who is enrolled in 12 hours of college credit per semester (Bean & Metzner, 1985).

GED: General Education Certificate, an equivalent to a high school diploma.

GPA: Grade Point Average, the average of all completed course work.

Persistence: When a college student does re-enroll in the college (Astin, 1993).

Nontraditional Student: A college student that may be one or more of the following: older than her/his peers, part-time, and or commutes to campus, they have limited interaction with other members of the college (Bean & Metzner, 1985).

Part-time College Student: A college student who is not enrolled in the traditional 12 hours of college credit per semester (Bean & Metzner, 1985).

Retention: When a college student re-enrolls in the college (Astin, 1993).

SAT: Scholastic Achievement Test, a standardized achievement test given to evaluate knowledge and predict college performance (Astin, 1993).

Traditional Student: A college student who begins his/her college work following completion of high school. The age of this student is typically 21 years of age or younger. They tend to live on or close to campus, and are not married with children (Bean & Metzner, 1985).

Theoretical Assumptions

Persistence is a complex behavior, that occurs over time. Specific to this investigation, persistence is difficult to study since the student body at community colleges are a collection of sub-groups or heterogeneous. However, studying a large sub-group within this population, the influences of persistence that relate to this sub-group emerged (Hossler, Bean & Assoc., 1990). The following are theoretical assumptions, and are based on previous research (Allen, 1994; Bean & Metzner, 1985; Cabrera et al., 1992; Hossler, Bean & Assoc., 1990; Pascarella & Terenzini 1991; Tinto, 1975). Collectively, these assumptions formed the foundation for this study.

1. Persistence occurs over time, specific items are grouped to form retention variables. Retention variables are related to one another, and form pathways that result in persistent behaviors.

2. Both full-time students and part-time students were asked to participate in this study. With the inclusion of both classifications of students, retention variables were more fully understood.

3. The instrument utilized for this study was developed for all college freshman. It was assumed that with modifications, this instrument adequately measured persistence variables for college students with varying disabilities.

Limitations of the Study

Due to the complex nature of retention and the lack of studies done with disabled students, research questions one through seven were descriptive in nature. However, research questions eight was designed to make inference about these subjects based upon the retention variables used in this study. The limitations of this study included the following:

1. No casual relationships can be inferred about all students with disabilities.
2. No control variable (s) on the data were available.
3. The information available was voluntary, and there were no controls over who completed the survey information. In addition, voluntary data collection may over represent certain influencing variables such as: disability types, background variables, and may contribute to unequal response. Finally, the reliability of self-report data limits the accuracy of the results.
4. The results from this study are limited to this institution and may be unique to this particular setting. Therefore, no inferences were made regarding all students with disabilities.
5. Some students needed the survey questions read and or translated to them. For example deaf students primary language is American Sign Language (ASL), which differs

from standardized English. The translation process might have interfered with the accuracy of those responses.

6. The result of this study were limited to retention of students from one semester to the next semester.

7. Students with disabilities receive funding from multi-agencies. The effects of this type of financial aid, along with the process of applying to numerous agencies was beyond the scope of this study.

Organization Of This Study

Chapter I began with an introduction of the current concerns, status, and trends experienced by higher education institutions in regards to student enrollment in general. This section provided the reader with background information related to the problem currently being investigated. The purpose of this paper was stated statement of the problem was presented, the research questions preceded the significance of this study. Assumptions of this study were discussed, the limitations of this study were presented next, and this chapter concluded with the presentation of the overall organization of this study.

Chapter II contains a review of the literature, including a brief discussion of institutional research, a short discussion of the theoretical development of retention models. A clarification of retention variables, the characteristics of the college utilized in this study, and student services available at this college follow. Chapter II concludes with a summary. Chapter III begins with an overview of the chapter and presents the

methodologies utilized for this study. The selection of the subjects, instrument, the research design, the procedures used in this study and data analysis are included. Chapter IV begins with a overview of the chapter, a discussion of participants, descriptive data, data relating to research questions and the results of the analyses are included in the results section. Chapter V contains a brief summary, conclusions, and concludes with recommendations for future study.

CHAPTER II

REVIEW OF RELATED LITERATURE

Colleges have changed greatly since their conception. To keep up with the evolution of colleges, researchers began looking at how their institutions functioned, and the effects of college on the individual.

This chapter will begin by discussing how research conducted at colleges lead to the development of retention models. A presentation of the early models of persistence leads the reader to a discussion of later models.

As one progresses through this chapter, the complexity and refinement of these models will become evident. To clarify factors that influence persistence, each variable will be discussed. This chapter will conclude with a description of the college involved in this study, and a summary of chapter will indicate the closure of this chapter.

The Role of Institutional Research in the development of Retention Models

The overall intent of institutional research is to improve the educational experience for the students at the university. This type of investigation can evaluate numerous factors that influence the quality of the educational experiences at the university or college.

Typically, the areas of most interest to researchers are: a) increasing the awareness of how the organization functions, b) finding problems that exist within the institution, c) determining can the institution effectively solve the problems that exist, d) listening to

student opinions, and e) implementing student input into institutional policy making. To accomplish these tasks, institutional researchers began their investigation of persistence by utilizing both quantitative, and qualitative methods of data collection (Kinnick & Ricks, 1993; Terenzini, 1993). These forms of research were utilized at four year universities, resulting in the development of retention models that fit within that setting.

In contrast, institutional research at two-year universities lagged behind the research efforts at four-year universities (Bean & Metzner, 1985). Consequently, retention models that apply to community colleges were later in developing. Today, there are only a few retention models that apply specifically to the community college setting. Though few, these models form the foundation to assist and guide the institutional researcher in exploring persistence at the community college level (Bean & Metzner, 1985; Cohen, Brawer, & Lombardi, 1971).

To assist in the decision making process, administrators have researchers investigate problems that arise. Some problems are only found at the local setting. However, retaining students has become a nation-wide issue for most colleges (Clotfelter et al., 1991). Consequently, as time passed enough data have been gathered about persistence to formulate retention models (Terenzini, 1993). Presently, two retention models have emerged as leading explanation of persistence: Tinto's (1975, 1985) Student Integration Model (SIM), and Bean's (1985) Student Attrition Model (SAM). These models are complex in nature. In addition, they group individual items differently and assign them different variable names. Both the SIM and SAM models have relationship pathways

between and among variables which influence persistence. However, when comparing these two models one can find differences in the grouping of items, variable names, and the relationship pathways. After testing the SIM and SAM models, Cabrera et al. (1992) found by testing each model's pathway to persistence, a third model was indicated. Trying to incorporate the best of both of these models, Cabrera et al. (1992) developed the Integrated Retention Model (IRM) which represents a merging of the SIM and SAM models into one model of persistence. To understand how these models came into existence, the following section will trace current retention models from their simple origins to the complex models which exist today.

Retention Models

Originally, institutional researchers borrowed a theoretical framework in psychology to address the effects of college on the individual. Of the numerous potential theories, developmental, force-field, environment-person, social perspective, and change theories were utilized as the foundations for exploring how college effects the individual. Early investigators began looking at the impact of college on the individual by using one or two variables. These simple methods partly explained the effects of college on the individual. However, as understanding of persistence advanced, the models evolved, and more variables were added. Consequently, retention models developed into a distinctive category of theories and models (Pascarella & Terenzini, 1991).

Developmental Models

Since students change on numerous dimensions during their time at college it was felt the developmental frameworks would help researchers to understand the process of individual changes. In these types of theories changes are described across time and placed in different stages of student development (e.g., Erikson, Chickering's seven vectors, Marcia's model of ego identity status, and Cross's model of black identity formation). Hence, the focus of retention was on two broad areas; formation of identity and cognitive development (e.g., Kohlberg, Perry's scheme of intellectual and ethical development) (Pascarella & Terenzini, 1991).

Developmental models contributed two major factors to the study of retention: individuals change, and this change occurs over time. However, these models do not effectively address the organizational, the environmental, and the social interactions that influence persistence (Pascarella & Terenzini, 1991).

Force Field Model

Based on Lewin's (1951) force field of motivation, Noel et al. (1985), proposed a Force Field Analysis of College persistence. In this model, persistent behaviors were analyzed through multiple, and interrelated forces that vary in strength and direction. External or environmental forces that push towards fulfillment of goals are called driving forces. Forces that resist and impede persistence are called restraining forces (Noel et al., 1985). Most later retention models incorporated Noel et al. (1985) concept of external

forces or the forces outside the college's control in their study of persistence. An example of inclusion of these two forces are: environmental pull or the force that impedes persistence within Bean's SAM Model, and encouragement or the force pushing towards persistence found in the IRM model (Cabrera et al., 1992).

This model highlights the importance of external or environmental forces in persistence and the pathways that lead towards persistence. However, persistence involves internal forces towards persistence that are not accounted for in this model. In addition, the significance or the relative influence of external forces in persistent behavior depends upon the type of college one is investigating (Pascarella & Terenzini, 1991).

Environment-Person Models

To address how the college environment affects persistence models were developed that categorized environmental factors into different groups. In addition, the individual's traits are categorized into groups. Persistence is seen as the consequence of students finding an environment that matched their personality (Lenning, Beal, & Sauer, 1980). Person-environment theories (e.g., the Myers-Briggs typology, Holland) place equal importance on the person, and the environment to explain persistent behaviors (Pascarella & Terenzini, 1991). One of the underlying assumptions of these types of models is when the person-environment is a good match, individual values, goals, and interests will be present in the environment. Hence, persistence of a college education will occur (Pascarella & Terenzini, 1991).

While these types of theories include significant interactions between the person and the environment, these models do not allow for internal factors and factors outside of the institution such as financial difficulties in persistence. In addition, these models do not attempt to explain differences between individuals or the process of change occurring over time (Pascarella & Terenzini, 1991).

Social Integration Models

Spady (1970), developed a model that focused on student attrition or withdrawal. This theory was developed from a social system perspective. One of the underlying assumptions in this theory is withdrawal behavior is analogous to suicide. Therefore, withdrawal from college is a more permanent behavior of withdrawing from society. Spady (1970), derived this assumption based on Durkeims's research of suicide (Hossler, Bean & Assoc., 1990; Pascarella & Terenzini, 1992).

Spady (1970) therefore, postulated that students did not persist because of a lack of shared values (e.g., importance of academic work) and establishment of close friends or significant others at college (Hossler, Bean & Assoc., 1990). Hence, the student did not adjust or integrate academically or socially into the community of the college.

Consequently, social integration was the primary determining factor of persistence for the individual college student (Cabrera et al., 1992).

While this theory incorporates social integration to explain persistence, some students integrate socially so well that they do not attend to academic demands. In addition, this theory emphasizes the role "others' play in the decision process. Consequently, little

attention is devoted to the influences of the organization or institution (Pascarella & Terenzini, 1991).

Change Process Model

Keeping the themes of : change occurring over time, individual change, social integration, academic integration, and forces within the environment interacting with the individual, Astin (1970) developed the College Impact Model. This input-environment-output model represents a balance of a psychological, and sociological explanation of student change (Pascarella & Terenzini, 1991). Institutional environmental characteristics are seen in this theory as input. While the student's interactions with the environment is processed by the individual. Thus, resulting in persistence or considered here as output.

This model furthers the process of integrating theories by including the variables of : social, individual, and organization characteristics. However, this model's primary focus is on the process of individual change. In addition, how variables are related and the relative influence is not specified within this model. Therefore, the pathways leading to persistence are unclear (Pascarella & Terenzini, 1991).

Student Integrated Model

Tinto (1975) refined, and simplified Spady's (1970) attrition model into the Student Integration Model (SIM). This theory supports the hypotheses that persistence is longitudinal in nature or occurring over time and is a function of the match between an individual's motivation and his or her academic ability, with the institution's academic and

social characteristics (Allen, 1994; Hossler, Bean & Assoc., 1990). Additionally, this model incorporates Spady's (1970) view that withdrawal is a more permanent behavior of withdrawing from society.

Consequently, persistence is seen as longitudinal and a function of matching the individual's motivation and academic abilities, with a compatible institution. In addition, this model specifies how variables relate to one another.

While this model more fully explains persistence and proposes pathways that lead to persistence Tinto's (1975), SIM theory does not encompass the role of external factors in persistent behaviors (Cabrera et al., 1992).

Student Attrition Model

To address the impact of external forces on persistence Bean (1980; 1985), developed the Student Attrition Model (SAM) based upon the assumption that leaving college is not analogous to suicide (Spady, 1970). Rather withdrawal from college is analogous to turnover in work organization. This model emphasized the importance of behavioral intentions. These intentions are shaped by: attitudes about the organization the quality of instructors, student services, etc., which ultimately shape withdrawal behavior. Bean (1980; 1985) also assumed that factors external to the organization such as family needs, work, and stress, helped shape attitudes towards school. Individual items, variable names, and the pathways to persistence differ from the SIM model. While this theory accounts for external forces, this theory does not account for non-intellective factors, and

family approval variables in shaping attitudes (Cabrera et al., 1992).

Modifications to the Student Attrition Model

Bean and Metzner (1985), refined the SAM model to explain persistence in nontraditional students or the older, commuter college student. With these students the social support or encouragement to remain in college does not come from the institution, rather support to stay in college comes from external sources such as friends, family, spouse and children. This shift in the source of support is very different from the traditional student who looks toward faculty and peers for support (Allen, 1994; Hossler, Bean & Assoc., 1990). Hence, social integration, and the characteristics of the institution are less important in explaining persistence in nontraditional students. Bean and Metzner (1990), assume persistence to be a complex process that occurs over time, which begins with background variables such as educational goals, high school GPA, parents income, support and education. Secondly, students interact with the college environment, considered here as organizational variables of: admissions, course offerings, schedule, rules and regulations, financial aid, student services, and academic services. Additionally, students must adjust to the academic demands of college as well as adjust socially. External environmental factors; lack of finances, significant other elsewhere, opportunity to transfer, work role, and family responsibilities, are simultaneous forces acting upon the individual student along with academic integration, and social integration. These combined forces lead to student attitudes about the college. Students' attitudes towards the college in turn affect how they feel about the institution, and their loyalty to the

college. Bean and Metzner (1985) state these attitudes directly affect students intentions to leave or stay. For further explanation see Figure 1.

To summarize, this model is more complex. It suggest persistence occurs over time, and is affected by the interaction between social and academic integration, and environmental factors leading to ones intentions and the decision persist. Research that followed (Cabrera et al., 1992), in which the most descriptive variables from two models (SIM and SAM) merged into an integrated model.

Integrated Retention Model

While evaluating the effectiveness of both the SIM and SAM models' ability to explain persistence, Cabrera et al. (1992) found part of each model to be effective. Cabrera et al. (1992) proposed by merging both Tinto's (1975, 1987) SIM with Bean's (1985) SAM into an Integrated Retention Model (IRM) persistence could be more fully understood. Cabrera et al. (1992), study concluded that persistence is a complex set of interactions among personal and institutional factors. In addition, the intent to persist is a successful match between the student and the institution. Thirdly, the external factors of encouragement and finances that are found in the SAM theory accounted for more variance in the intent to persist, and persistent behavior. These two factors were not included in the SAM model. Finally, Cabrera et al. (1992) validated 70 percent of the hypotheses in the SIM model. Therefore, this study (Cabrera et al., 1992) concluded that a model integrating the leading factors in each theory may contribute to explaining the persistence process better.

Additionally, they found by converging and discriminating the validity between these two models provided a more comprehensive understanding of the persistence process. For further explanation see Figure 2.

Summary of Models

The evolution of retention models has mirrored the changes seen at universities. The use of both applied (i.e., problems solving) and basic (i.e., theory driven) methods of research along with varying data collection techniques have advanced what is known about persistence. Today, retention models are complex incorporating numerous variables with each having a direct or indirect pathway that leads to persistence (Allen, 1994; Bean, 1980; Bean & Metzner, 1985; Cabrera et al., 1992; Lewin, 1951; Spady, 1970; Tinto, 1975, 1987). The force and relationship among the variables differs according to the institution and student body under investigation. However, recent retention models have incorporated variables broad enough to explain the phenomenon of persistence. Inclusion of these variables consistently explains persistent behaviors and provides the framework to investigate the relative influence of each variable.

Background variables, encouragement, social integration, organizational characteristics, academic integration, environmental pull, goal commitment, and the intent to persist are the commonly identified variables that pertain in the investigation of persistence (Allen, 1994; Bean & Metzner, 1985; Cabrera et al., 1993; Hossler & Bean, 1990; Pascarella & Terenzini, 1991). However, some studies report conflicting results regarding the importance of specific retention variables such as: high school GPA, and

financial assistance. In addition, the placement of variables in the pathway to persistence differs with each model. The following section will discuss relative retention variables.

Retention Variables

The variables thought to influence persistence are numerous. In addition, each variable contains individual items that differ according to which model is utilized in the study. The following is a brief discussion of the variables included in the SIM, SAM and IRM models. In addition, the variables will be operationally defined and a clarification of items that defined them will be presented.

Background Variables

Background variables include such items as: educational goals, high-school GPA, current GPA, parental SES, gender, age, enrollment status, ethnicity, and parental educational level (Astin, 1975; Bean & Metzner, 1985; Hossler & Bean, 1990). Stahl, and Pavel (1992), did not think certain background variables accounted for persistence variance. For example: age, ethnicity, and gender were omitted from their analysis because they are attributes that cannot be changed by the college environment (Stahl & Pavel, 1992). In addition the group of students being studied determines if high-school GPA influenced persistence. For instance, high school GPA seems to be less predictive of nontraditional persisting behaviors versus traditional students. Rather the college GPA tends to predict persistence behaviors for this group of students (Hossler, Bean, & Associates, 1990; Stahl & Pavel, 1992).

Stinson, Scherer, and Walter (1987) found support for the intercorrelation among high school achievement test and college performance for deaf students at a four year university. More over and in general, for these students high school grade point averages and ACT scores tend to predict college grades (Stinson, Scherer & Walter, 1987). However, college grade point average did not predict college persistence. This finding (Stinson, Scherer & Walter, 1987) may be unique to the particular college setting in which the study was conducted. In that special programs may be available at this setting, yet not readily available at other universities or community colleges.

In addition, ACT and SAT may not predict future college performance. Students with documented disabilities are able to take the ACT and SAT test under "special" conditions such as extended time, reader. If the student with a disability knows he/she has this option, and exercise his/her rights, he/she will usually score higher on these exams (Willingham, Rogosta, Bennett, Braun, Rock, & Powers 1988). However, the student must follow up at the college they are attending and request similar testing conditions for their exams in each class (Heath Resource Center, 1995).

Disability

The background variable of student with disabilities is unique to retention studies. How this variable will effect persistence is unknown. Having selected a post-secondary institution, community college administration ask: what propels the college student with disabilities to persist? What factors influence students with disabilities to leave the post-secondary setting? Growing knowledge exist for why non-disabled students leave or

stay in college. However, little literature exist regarding why students with disabilities persist. In addition, the student retention models that exist have yet to be applied to the college student with disabilities.

Henderson's (1995) national study of community colleges and four-year universities, reported that over fifty-six percent of all post-secondary students who have disabilities are attending community colleges. Nation-wide 9.2 percent of all full-time, first-time college freshman students have one or more disabilities, while 6.3 percent of all post-secondary students have disabilities (United States Department of Education, National Center for Educational Statistics, 1995). Henderson (1995), predicts with the implementation of the Americans with Disabilities Act of 1990, the population of post-secondary students with disabilities will continue to grow through the next decade. It appears that the community college setting is called upon to meet the educational needs of students with disabilities.

Encouragement

The time, energy and effort needed to be a successful college student can become a struggle for the individual. It can strain coping abilities and cause stress for the individual. Social, physical, and psychological encouragement to continue to stay in college comes from varying sources. Support to stay in college can come from spouse, friends, parents, and significant others. Consequently, it is thought that friends, and family can help buffer this struggle. The amount of encouragement a student receives is positively related to persistence (Bean & Metzner, 1985). Consequently, encouragement is a force pushing the student towards persistence.

Allen's study (1994) at a four-year university found family encouragement to be a significant determinant in re-enrollment. Pascarella and Terenzini (1991), and Nora (1987), also found that encouragement from family and friends exerts significant effects on the persistence process.

In contrast, Bean & Metzner (1985), and Hossler, Bean and Associates (1990) found with nontraditional students, encouragement may come from sources other than parents (i.e., spouse, children, co-workers, etc.). However, encouragement or the absence of encouragement continued to be a significant influence on persistence, even in nontraditional college students. Therefore, one must keep in mind the type of students under investigation when determining the items to be included in the grouping of variables.

Social Integration

Social integration includes: a) academic involvement or attending class, study time, personal computer use, b) involvement with faculty such as talking with faculty outside of class, working on research assisted teaching a class, etc., c) involvement with student peers or socializing, student clubs or groups, student government, tutoring a fellow student, etc., d) involvement in part-time on campus work, as opposed to full-time work and/or part-time off campus work, and e) other involvement can negatively impact the student such as use of alcohol, reading for pleasure, commuting to campus, watching television, etc., (Astin, 1993). Social integration is linked to increases in institutional commitment. The higher the level of institutional commitment, the more likely a student will persist.

In summary, the more a student is involved in the activities of the college, the more likely student development is facilitated at four year universities. This data are not true for nontraditional and community college students. Bean and Metzner (1985), and Hossler, Bean and Associates (1990) report that older and or commuter students exhibited less social integration at college. Studies which contrast older students with traditional aged students revealed that older students express relatively little interest in social integration (Chickering, 1974; Dressel & Nisula, 1966; Everett, 1979; Flanagan, 1972) .

However, two items are closely related to social integration did influence persistence in nontraditional student they are: good academic advising, and associating with faculty outside of the class (Stahl & Pavel, 1992; Wolfgang & Dowling, 1981).

Finally, Stahl and Pavel (1992), found social integration did not account for enough variance to include it in their model for nontraditional students. Rather, college GPA especially first semester was a better predictor of persistence in older students.

Typically, more numbers of students with disabilities attend community college where they commute and they are older than traditional aged students (Henderson, 1995). Stinson, Scherer, and Walter (1987) found that deaf college students at four year colleges who were satisfied with their social life tended to have a higher persistence level. However, deaf college students who were highly involved with college sponsored activities were less likely to persist in their college work. Stinson, Scherer, & Walter (1987) interpreted this data to mean that these students over emphasized their social

involvement, while failing to develop independent living skills and mastering self-management of study time.

College or Organizational Attributes

In the competitive market of recruiting and retaining students, dividends can be anticipated by providing academic programs and other services that meet the needs of the student population. Included in this area are: all student services and programs, admissions office, administration, academic advising, courses and programs offered, courses at convenient times, quality of instructors, rules, and regulations of the college, and financial aid are considered college or organizational attributes (Hossler, Bean & Associates, 1990).

Ratings of college environment by students translates to student satisfaction level. Student re-enrollment is the result of satisfied students (Astin, 1993). The specific information regarding financial aid has mixed results. Cabrera et al. (1990), found that financial difficulty leads to withdrawal regardless of age or enrollment status. In addition, ability to pay has more effect on goal, and institutional commitment than does academic integration.

Academic Integration

Study time, absenteeism, expected GPA or current performance, and how well the student is presently performing in class are items of academic integration. These items impact the grades a student will receive. Therefore, the adjustments to the academic demands of college can indirectly effect persistence (Stahl & Pavel, 1992).

Absenteeism has a negative effect on persistence for students with low academic ability and confidence (Stahl & Pavel, 1992). Many students with disabilities miss college classes for the same reasons non-disabled students miss class. In addition, how many classes are missed due to disability related issues is unknown.

Study habits or the amount of time the student spends per week studying have direct effects on persisters in four year and two year colleges. Those who studied moderate to high amounts obtained better grades in college. In addition, part-time, and full-time students who studied were more likely to stay in college (Bean & Metzner, 1985; Johnson, 1980).

Financial Attitude

Financial attitude is a retention variable that includes how much funding is available to the student as well as the attitude of the financial aid staff of the college. Financial aid can help keep students in school. However, heavily funded students might indicate the student has come from an educationally disadvantaged family and therefore will not do well academically. The effects of financial aid on persistence are mixed (Hossler, Bean & Associates, 1990). Additionally, older nontraditional students tend to worry about financial concerns and more students tend to list financial difficulties as the reason for their withdrawal from college (Bean & Metzner, 1985).

College students with disabilities have one to two additional agencies involved in the funding of their education. Students with disabilities can receive funding from the Social Security Department and or Vocational Rehabilitation Department. The funding for

students with disabilities involves multiple agencies. Moreover, the application process, and granting of funds can be more entailed for these students. Consequently, the relative effects of financial aid from these outside agencies is beyond the scope of this study.

Environmental Pull

College students have numerous factors that intervene with persistence of their educational objective. For instance, the need to be with significant "others" in other locations, the need to work, family responsibilities, illness, job transfer, commuting to college, and other forces external to the college setting. These factors interfere with persistence. In general, the student's attention, and energy is a pull away from academic demands, towards other issues. Consequently, this variable has an inverse relationship with encouragement, which is a force directed towards persistence (Hossler, Bean & Assoc., 1990).

The degree of influence this variable has on persistence, varies from one student to another. Usually, the older non-traditional college student has a higher degree of environmental pull away from the college setting (Bean & Metzner, 1985).

Goal Commitment

The certainty a student has of his or her major, degree level (i.e., bachelor's master's, etc.) and the degree to which the student is committed to obtaining his or her educational goal are items included in this variable. When student's have high educational goals persistence at community college can be negatively impacted. In general, students whose

educational goal is higher than an associated degree, tend to leave community colleges to pursue their goals at a four year university (Stahl & Pavel, 1992).

Astin, (1970; 1975), and Pascarella et al. (1983), found education goals to have indirect effects on retention of college students. In addition, Cabrera et al. (1992), found that to some extent a students commitment to a goal effects persistence. However, the effects of goal commitment are unknown within college students with disabilities.

Intent to Persist

The decision to re-enroll for the next semester is intent to persist. Whether a college student intends to leave or stay in college is the strongest predictor of persistence (Bean, 1980, 1985). Intent to persist is indirectly affected by satisfaction, goal commitment, and environmental pull. Both the SIM and SAM models conclude the accumulation of the forces from other variables into one factor label intent to persist (Cabrera et al., 1992). This variable is considered the most reliable and consistent variable in the prediction of persistence.

Institutional Characteristics

Each college creates a climate in which education of students occurs. The institutions' mission and philosophy directly or indirectly affect policy-making. What is important to the leaders of the college determines the instructional focus and what student services are available. One must keep in mind that persistence is affected by the person-environment interactions and fit. The next section will present the characteristics of the institution involved in this study.

Community College Characteristics

The community college utilized in this study is a large, urban, college. Located in the southwestern area of the United States, in a community of over one-half million people. This community college has four campus locations within the same county. The locations are central, south, north and west. Together, these four campus sites have over 29,000 students enrolled for the 1995 semester. Approximately 81 percent of the total student population are part-time students.

Like many community colleges, this college has virtually an open door policy. That is, enrollment is open to the public almost without exception. In most cases, those eligible to enroll are high school graduates, GED recipients, or college transfers. Enrollment hours may be limited for students without a high school transcript or GED and students who are presently in high school. Students with poor college academic performance records are limited in enrollment hours; probation or eventually suspended from the college if academic performance does not improve.

This community college offers freshman and sophomore level college parallel course (i.e., 1000 and 2000 level courses). In addition, this college offers numerous technical, and occupational programs, as well as continuing education courses. Day classes, evening classes, weekend classes, eighteen week, eight week, and four week courses are offered on all four campus. Numerous remedial level (e.g., high school level course work that is not college credit) courses in math, reading, and writing. Support labs which assist or tutor type guidance for math and writing are offered at each campus.

It is expected with this community college's "open-door" policy attrition rates will be equal to other like colleges. Noel et al. (1985) reported with essentially an open-door policy at institutions, and or an average ACT score of 15 or below, the attrition rate will be close to 41 percent.

From archival data it was found, 32% of the student population are twenty-two to thirty-one years of age, and 22% are 32 to 41 years of age. Which is considered older than the traditional age student. Twenty-eight percent of the student population at this community college is the traditional age of 16 to 21 years, 18% of the student population are 41 years or older.

Post-secondary institutions collect data on students from the time of application to graduation. This wealth of information has been utilized for numerous reports and studies within this institution. However, the data has not been organized into a formal retention study at this college. Two factors have come into existence recently at this community college. As part of their mission, this community college recently staffed a research department. Secondly, a department to meet the needs of disabled students (i.e., disAbled Resource Center) has realized an increase in the number of students requesting services. The administration of this college wants to continue providing quality services to students with disabilities.

Student Service Available at This College

To meet the needs of this growing student population, this community college has designated a disAbled Student Resource Center. Located at the central campus, this

center employs disability specialists and has adaptive equipment to meet the educational needs of college students with disabilities.

Some of the services that are available to the disabled student include: academic counseling and advising, special testing arrangements, scribes for tests, classroom note takers, tutoring facilities, and remedial courses. The center also acts as the "meeting" place for many of the students with disabilities. There, they socialize and find social support from other college students.

To meet the needs of these college student, the administration expanded their data base regarding retention factors for students with disabilities. By obtaining archival data, survey data, and synthesizing it into whole, it was expected to clarify retention issues for students with disabilities at this community college.

Summary of Chapter II

The chapter has presented a brief review of the role of institutional researchers development of retention models. A presentation of the models attempting to explain persistence, followed a chronological order. The last models presented (SIM, SAM and IRM) provided the most flexibility. These models include most of the variables from previous research. To help clarify these models a discussion of the related retention variables was presented. To familiarize reader with the setting of this study, the characteristics of the institution involved in this study were presented.

CHAPTER III

METHODOLOGY

This chapter will begin with a description of the population utilized for this study, the participants, and the techniques for selecting the participants. Further, a discussion of how the groups were determined, the sample sizes, and the sources of sampling bias will be presented. Next will be the instrumentation and instrument modifications. The design of this study will be discussed, the procedures section is next and data analysis techniques used to answer the research questions will conclude this chapter.

Subjects

The participants used in this study were drawn from a large junior college located in an urban area in the southwestern United States. The subjects were diagnosed by a outside professional with one or more of the following disabilities: a) ADD or ADHD, b) visual impairment, c) physical impairment, d) emotional impairment, e) learning disability, f) mobility impaired, g) hearing impaired, h) developmentally disabled, and or i) other disabilities. The participants were those students who receive academic accommodations (i.e., physical and or educational) from the disAbled Student Resource Center (dSRC), a specialized department at this college. Both part-time students and full-time students were solicited for participation.

When a student applies to attend this community college various information is obtained from each individual. This data is entered into the computer by: the registrar's office, the college assessment center, the advisement center and financial aid department. Archival data were gathered from the college's existing data base to give an overview of the general student population.

Selection of Subjects

The participants for this study were selected by utilizing the departmental (i.e., dSRC). This data base includes current and archival data that is maintained by the department. All currently enrolled students on this data base who were enrolled for the Fall 1995 were contacted by mail for participation in this study. In addition, archival data from the department was utilized to evaluate enrollment trends from the year 1994 to the year 1995.

Two naturally-formed or self-determining groups emerged: students who re-enrolled the following semester, and students who did not re-enroll for the following semester. The differences between these groups were evaluated.

Instrument

The Student Opinion Survey

This questionnaire was designed and developed on validated retention models in the literature (Allen, 1994; see Appendix B). The questionnaire has three sections. Section I has 14 background questions, section II has 31 student opinion questions, and section III has 20 college attribute questions.

The items in Allen's (1994), questionnaire were derived from the Student Integration Model (Tinto, 1975, 1987), the Student Attrition Model (Bean, 1985), the Ability to Pay Model (Cabrera et al., 1992), Nora's (1987) model addressing the role of friends and parental influence on the persistence process, findings on large urban commuter institutions, and research on financial aid (Nora & Rendon, 1990; Voorhees, 1985).

In addition, Allen (1994), added 24 items that measure college attributes. These items were based on the American College Testing (ACT) Student Opinion Survey. Allen (1994) added 14 background items. Each of the items were placed in one of the following groups: 1) background, 2) college attributes, 3) encouragement, 4) financial aid attributes, 5) academic integration, 6) social integration, 7) goal commitment, and 8) institutional commitment. Allen (1994) derived two additional items from Pascarella and Terenzini (1991) which were: intent to persist and persistence.

Allen's (1994) factor analysis study revealed six factors accounting for 58.4% of the variance. These findings are similar to those reported by Cabrera et al. (1993) with similar structure and item composition. Cabrera et al. (1993) selected 79 items from several instruments developed by Bean (1980, 1985), Metzner and Bean (1987), and Pascarella and Terenzini (1991).

Allen's (1994) assessment of internal consistency measured via Cronbach's Alpha, yielded the following coefficients: Social Integration ($\alpha = .85$), Academic Integration ($\alpha = .67$), Encouragement ($\alpha = .64$), Institutional Commitment ($\alpha = .76$). Goal Commitment

($\alpha=.76$) and Financial Aid Attitude ($\alpha=.81$). In an effort to improve the content validity of the items on the SOS, the wording of origin items were reviewed, and modified by institutional academic advisors, disability specialist and counselors. This process follows procedures utilized in both Allen (1994), and Cabrera et al., (1992) studies. Additionally, this study evaluated the internal consistency of the SOS. The overall Cronbach's Alpha for the instrument used in this study yielded an $\alpha=.90$, the 20 item student opinion section had an $\alpha=.92$ and the 27 item retention section of the survey had an $\alpha=.79$.

Modifications to the Questionnaire

This survey had adaptations made for the subjects of this study. Modifications to this questionnaire were: adding questions that related to the influence of disabilities on re-enrollment, qualitative sections, and the print was enlarged from 12 point font to 14 point font to assist low vision student's ability to read the questionnaire. Upon request, other accommodations were provided for the subjects who are visually impaired.

In Allen's (1994) study, 104 questions were utilized. The questions for this study were reduced to 62 questions. The questions were selected from two previous research studies which investigated college student retention. The questions selected for the SOS represented questions with the highest reliability values for each of the retention variables (Allen, 1994; Cabrera et al., 1993). In addition, section II and section III had comments sections. These sections were included to provide the flexibility to gather information that might not be captured by a survey designed for non-disabled students.

The final form of the questionnaire required approximately 15-20 minutes to complete. Section I had nine short fill-in-the-blank questions and five select-the-correct answer questions, section II had 27 items that are Likert-type scale ranging from one to five (i.e., one strongly agree, two agree, three neutral, four disagree, and five strongly disagree). In addition, section II had four short answers and one area for additional student comments. Section III had 20 semantic differential scaled questions ranging from one to five (i.e., one very satisfied, two satisfied, three neutral, four dissatisfied, and five very dissatisfied). Refer to Appendix C to see a copy of the revised instrument.

The first section of the questionnaire contained background questions. The second section of the questionnaire consisted of questions related to retention variables. The last section of the survey contained organizational characteristics.

In section II, social integration questions were numbers: 1, 6, 10 and 19. Encouragement questions were numbers: 3, 5, 8, and 15. Academic integration questions were numbers: 18, 21, 23, overall college grade point average. Institutional commitment questions were numbers: 7, 12, 20, and college preference at time of application. Goal commitment questions were numbers: 4, 9, 11, 16, and 22. Finance attitudes questions were numbers: 2, 14, 17, and 25. Environmental questions were number 13, amount of time spent at work, number of "others" responsible, and number of absent days per semester. Questions relating to disability were 24, 28 and type of disability. The intent to persist was question number 26.

Design

To avoid the criticisms of a study that gathers information after the student has decided to leave or an autopsy study which are: a) students giving normally accepted responses to questions, b) students making attribution errors of why they left college, and c) students who stay, and leave can have the same problems, a cross-sectional method of data collection was employed (Hossler, Bean & Assoc., 1990). Cross-sectional studies gather information from a number of students one time, as opposed to longitudinally. The advantages of this cross-sectional data collection are: a) data can aid in the determination of why one group of students at one point in time leaves college, b) this information can be put into a statistical model and important factors affecting attrition decisions identified, c) existing student records and/or questionnaires can gather needed data, d) data can be analyzed to see whether the characteristics of students who leave the school systematically differ from the characteristics of those who remain, and e) the data can be treated descriptively, comparing the two groups (Hossler, Bean & Assoc., 1990, pp. 174-176).

Procedures

Community college administrators were contacted in person to seek their participation in this study. Permission was obtained from the community colleges institutional review board, college administrators, and from the department supervisor of dSRC. In addition, approval from the researcher's sponsoring university was granted prior to data collection. With the consent of the college, dSRC, and the institutional review board, archival data were gathered from the college data base and the department's data

base. The questionnaire employed in this study included a cover letter with an introduction and a statement of the purpose of the study. In addition, the introductory letter assured anonymity of the individual's responses (see Appendix A). A copy of the letter and a survey were mailed to each student currently on the database at the dSRC. A self-addressed return envelop was attached to each survey. A follow-up phone call was placed to all students to remind them to complete, and return the survey. To ensure a large response rate, this study followed Allen's (1994) format of providing random drawing prizes. All individuals who completed the survey were entered in a random drawing for three cash prizes (i.e., \$25, \$30, and \$50) given away one week after the surveys are returned.

Data Analysis

The study employed descriptive and inferential statistical methods. Multivariate Analysis of Variance (MANOVA) was used to analyze the effects of retention variables on persistence. The results of analysis were tested at the statistical experimental error wise rate of $p < .05$. The computer program SPSS (Norusis, 1994), was utilized to create a data bank, and generate the necessary analyses. The demographic data was summed and the frequencies were reported in means and standard deviations. Student satisfaction level was summed reported in means with standard deviations and tested for significance.

Descriptive Data Analysis

To answer research questions numbers one, two, three, and four: How many students have disabilities at this community college for the Fall 1995 semester; What are the percentages of the different disability types within this population; How does the number of currently enrolled students with disabilities compare with last year; and What is the overall retention rate of students with disabilities from the Fall 1995 semester to Spring 1996 semester, descriptive terms. The percentages of male or female, disability type, represented within the students with disability population were reported. The average number of college hours enrolled, age, absenteeism, number of hours worked, number of hours studied, and parental education level were reported (see Table 1).

National Trends

To answer research question number five: Has this community college experienced the increase in learning disabled students that is reported nation-wide, the local findings of the disability types will be compared to the national trends found by Henderson (1995). They will be reported in descriptive terms.

Student Satisfaction Section III of the Survey

To answer research question number six: Overall, are students with disabilities satisfied with the services of this college, the overall level of satisfaction will be summed, and reported with a frequency. To answer research question number seven: Are there specific college services that are not meeting the needs of students with disabilities, scores on each of the factors were obtained by simply adding together the students scores for

each of the relevant items. The means and standard deviations were reported. In addition, the differences between persisters and non-persisters was evaluated via a two-tailed t-test.

Assessing the Retention Variables of Persistence

To answer research question number eight: Do any of the following variables distinguish between students who persist and students who do not persist at this college:

a) background, b) college attributes, c) encouragement, d) financial aid attributes, e) academic integration, f) goal commitment, i) disability and j) intent to persist, a

Multivariate Analysis of Variance and test of significance were conducted (see Table 3).

Qualitative Data

Finally, the qualitative data was summarized, any student comments in sections II and III were categorized and reported in percentages. These two qualitative areas of the survey are meant to broaden the information gathered on the effects of disabilities and student opinions on persistence. The comments were coded into related categories and the results were summarized and related to student satisfaction and retention variables.

CHAPTER IV

RESULTS

The results of the statistical analysis of the data pertaining to the research questions asked in this study are presented in this chapter. The purpose of this study was to evaluate the enrollment status of disabled students, compare national trends with local findings, discover which disability type is most prevalent in this group, evaluate the level of student satisfaction and explore the different retention variables that influence persistence.

The descriptive data will be presented followed by a discussion of the types of disabilities found in this group. The overall retention rates, the comparison of national trends to local findings and student satisfaction levels follows. Research question number eight used inferential methods to analyze the effects of retention variables on persistence for these college students. Additionally, the qualitative data will be presented.

Participants

On November 1, 1995, 247 students were registered for services at the disabled Student Resource Center (dSRC) at this community college. Of the 247 questionnaires mailed out, two surveys were returned due to incorrect addresses on the data base at dSRC. One-hundred and twenty surveys (120) were returned of which 119 were

complete enough to be utilized in this study. This study had a return rate of 48% for the survey. Some students requested services after November, 1995 and before the end of the semester. The total number of students with disabilities for the fall 1995 semester was 257. Due to the lateness of these student's request for services, they were not included in this study.

Of the 119 respondents in this study, 72 were female, 47 were male. Of the respondents, 105 of the students re-enrolled, 14 did not re-enroll for the spring 1996 semester. Thirty-six students reported having a learning disability, 16 reported having ADD or ADHD, 38 reported having other types of disabilities, 18 mobility impairment, 17 reported emotional impairment, 11 reported visual impairment, 10 reported hearing impairment, 6 reported physical impairments, and 1 student reported a developmental disability. The total disabilities reported was 153 types for the 119 respondents. Some of these students have been diagnosed with one or more disability types.

Descriptive Data

The means and standard deviations for all respondents persisters and non-persisters are listed below in Table 1. The averages of: age, number of hours enrolled, number of others responsible, absenteeism for the Fall 1995 semester, number of hours studied, college choice, overall college GPA, estimated Fall GPA, college goal, number of hours worked, and parental educational level are reported in means. After performing two-tailed t-tests for independent samples of unequal groups, no significant differences were found between the persisters and non-persisters on any demographic factors except reasons why

Table 1
Descriptive Data of Students With Disabilities

Item	Overall N=119 M (SD)	Persisters N=105 M (SD)	Non-persisters N=14 M (SD)
Age	31.28(10.73)	31.39 (10.78)	30.43 (10.72)
Number of Hours Enrolled	9.37(3.48)	9.61 (3.23)	7.57 (4.72)
Number of Others Resp.	1.00(1.37)	0.95 (1.36)	1.39 (1.45)
Number of Days Absent	2.34(2.87)	2.42 (2.96)	1.71 (2.05)
Number of Hours Studied	4.05(2.28)	4.07 (2.27)	3.93 (2.43)
College Choice	1.26(1.61)	1.13 (.34)	2.21 (4.54)
H.S. GPA	3.75(2.46)	3.76 (2.47)	3.69 (2.50)
Overall College GPA	2.82(.74)	2.80 (.75)	3.04 (.63)
Est. Fall 1995 GPA	2.99(.99)	2.97 (1.01)	3.30 (.56)
College Goal (Years)	4.45(1.49)	4.40 (1.42)	4.86 (1.99)
Hours Worked Per Week	6.03(11.15)	5.98 (10.83)	6.43 (13.79)
Parental Educational Level			
Mother	12.93(2.49)	12.97 (2.42)	12.43 (3.03)
Father	13.09(2.99)	13.13 (2.99)	12.85 (3.69)

Note. M=Mean, SD=Standard Deviation.

students reported missing class. With persisters missing class more often due to medical reasons than non-persisters. While no statistical significance was found for the majority of these factors, practical significance can be gleaned from the demographic data.

The average age for the overall and the persister group was slightly over 31 and non-persisters were slightly over 30 years old. However, the standard deviations for all groups was slightly over 10. This indicates this group of students, are older than the traditional college age of 21. However, the age of these students varies.

All groups averaged under the traditional 12 hours taken per semester by "full-time" college students. For the overall and for the persister groups the average number of hours enrolled was 9 hours. Non-persisters on average were enrolled in slightly more than 7 hours of college. The number of others the student was responsible for was one overall, less than one for persisters and slightly over one for non-persisters. Overall, for persisters and non-persisters the average number of hours studied per week was four hours.

As part of the background information, section one of the SOS, students were asked the number of days they were absent. Overall, no significant differences were found between the persisters and non-persisters groups ($p > .05$). For this group of students, the survey asked students to list reasons for missing classes. Missing classes for family related reasons was the highest reason for missing class ($M=2.13$, $SD=1.6$). Missing classes for other reasons was the second highest for the overall group ($M=2.11$, $SD=1.76$). Respectively missing class for work related reasons ($M=1.89$, $SD=.93$) and missing for medical reasons ($M=1.29$, $SD=2.23$) for the overall group. A significant difference

between persisters and non-persisters for missing class for medical reasons was found ($t=.022$, $p < .05$). The persister group missed class more often due to medical reasons ($M=1.38$, $SD=2.33$) than the non-persisters ($M=1.33$, $SD=1.03$).

The overall high school GPA mean was 3.75, persisters high school GPA was slightly higher than non-persisters high school GPA. There were no significant differences between these groups for high school GPA. Overall these students self-reported a college GPA mean of 2.82, the persister group reported a college GPA mean of 2.80 and non-persisters reported a college GPA of mean of 3.04. All though non-persisters self-reported a slightly higher high school GPA the differences were non-significant.

When asked to predicted their fall 1995 GPA the overall group mean was 2.99. The persisters predicted a mean of 2.97 for their GPA, and non-persisters predicted a mean of 3.30 fall 1995 GPA.

When asked if the college was the student's first second or third choice, it was the first or second choice for all groups. The amount of college listed as students education goal was slightly over four years for the overall, persisters and non-persisters.

The number of hours worked per week was six overall, persisters worked slightly less than six hours per week and non-persisters worked slightly over six hours per week. The the subjects answers to this question differed greatly. The standard deviation for all comparisons was large, one could assume that there were large differences within each group for the number of hours worked per week. However, all groups averaged around 6 hours per week of work.

The level of parent education was slightly under 13 years of education for mothers and 13 years of education for fathers. The persister parental educational level for mother and father was slightly higher than for non-persisters.

Reason for Attending College and Funding Sources

As part of the background information in section 1 of the SOS students were asked why they were attending college. There were four possible answers: re-training for new career, training for first career, personal enrichment and other. Overall, 43% of the students were training for their first career, 40% were re-training for a new career, nine percent for personal enrichment, and eight percent for other reasons. More persisters were training for their first career than non-persisters (45% versus 25%).

Types of Funding

As part of the background information, in section I of the SOS, students were asked what type of funding they receive for their education (see Appendix C). The sources of funding could be more than one of the following: Vocational Rehabilitation, federal student loans and grants, scholarships, family, or self. Overall, 59% of the students receive funding from the Department of Vocational Rehabilitation Department. In addition, 56% receive funding from Federal grants or loans, 35% pay their educational expenses, 19% have family funding and 17% receive funding from scholarships. More persisters receive funding from: vocational rehabilitation (62% versus 36%), federal grant or loans (55% versus 50%), scholarships (18% versus 7%) and family funding (19% versus 14%). Non-persisters more frequently paid for their educational expenses

themselves compared to persisters (57% versus 32%).

Students With Disabilities, the Overall Population

For the 1995 academic year, 579 students at this college reported having disabilities. This represents an increase of five percent from Fall 1994. Many students reported one or more disabilities. However, the largest group or disability type at this community college is learning disability, over 239 or 41.28% of all disabled students have a learning disability. This group includes all types of learning disabilities and ADD or ADHD. The second most frequently reported disability is physical impairment with 134 (23%) reporting this disability, followed by 103 (18%) emotionally impaired, 91 (16%) other disabilities, 77 (17%) visually impaired, 67 (12%) mobility impaired, 60 (10%) hearing impaired, and six (1%) developmentally disabled students.

The Overall Retention Rates of Disabled Students

The overall retention rate for students with disabilities was 83% (480) from the fall 1995 semester to the spring 1996 semester. In this study 88% (217) of the respondents re-enrolled the following semester. This finding is quite higher than the 41% retention rate expected from a college with a "open-door" policy (Hossler, Bean & Assoc., 1990).

Comparison of Local Findings to National Trends

For first-time, full-time college freshmen, Henderson (1995) found 32.2% have learning disabilities. In Henderson's (1995) study, learning disabled and ADD or ADHD were not distinguished as two separate groups. To make an equivalent comparison of Henderson's results with local findings, students with ADD and ADHD were combined

with learning disabled. The local finding was 239 or 41.28% of all students with disabilities report having a learning disability. In addition, this type of disability represents the largest group of students at this college. This represents a nine percent difference between national trends and local findings. However, this study included all college students with disabilities, regardless of hours enrolled and earned college hours.

Student Satisfaction Level

The SOS was utilized to evaluate the level of student satisfaction with the organization (see Appendix C). This section had 20 semantically differential scaled questions ranging from very satisfied or 1 to very dissatisfied or 5. The overall level of satisfaction had an mean of 2.05. However, none of the items had a mean greater than three. This indicated overall, the students were satisfied with this community college. In Table 2 the 20 items are ordered according to most satisfied to least satisfied for the overall, persisters and non-persister groups.

To compare any difference between persisters and non-persisters, a two-tailed independent t-test for unequal groups was performed. Three items were significant: classrooms ($t=.041$, $p < .05$), campus accommodations available ($t=.45$, $p < .05$) and financial aid staff ($t=.10$, $p < .01$).

Summary of Student Satisfaction Comments

This section of the SOS had an area for explanation of dissatisfaction. Most of the comments included attitudes of "others" towards disabled students. Eleven dissatisfied comments pertained to the attitudes of financial aide personnel. Eight dissatisfied

Table 2.
Student Satisfaction Level for College Attributes

Item	Overall N=119		Persisters N=105		Non-Persisters N=14		t Value
	Mean	(SD)	Mean	(SD)	Mean	(SD)	
14. Knowledge gained	1.710	(.681)	1.740	(.697)	1.500	(.519)	0.165
20. College in general	1.760	(.639)	1.800	(.632)	1.500	(.650)	0.177
5. Advisement	1.810	(.819)	1.820	(.806)	1.720	(.914)	0.689
2. Learning environment	1.830	(.629)	1.850	(.632)	1.720	(.611)	0.456
1. Overall college exper.	1.900	(.752)	1.920	(.753)	1.710	(.825)	0.380
3. Course variety	1.930	(.788)	1.950	(.776)	1.790	(.893)	0.670
4. Quality of instructors	1.960	(.729)	2.000	(.721)	1.640	(.745)	0.110
8. Condition of building	1.980	(.818)	2.020	(.808)	1.640	(.842)	0.134
17. Student services	1.980	(.743)	2.000	(.737)	1.850	(.801)	0.312
7. Classrooms	2.060	(.806)	2.110	(.800)	1.640	(.745)	0.041 **
6. Administration	2.080	(.845)	2.110	(.847)	1.790	(.802)	0.171
15. Physical accomodations	2.090	(.921)	2.140	(.941)	1.710	(.611)	0.045 **
12. Level of concern	2.100	(.879)	2.110	(.843)	2.070	(1.41)	0.941
19. Campus security	2.110	(.913)	2.150	(.911)	1.790	(.893)	0.167
13. Support labs	2.140	(.924)	2.180	(.922)	1.790	(.893)	0.159
16. Student attitude	2.180	(.791)	2.120	(.797)	1.930	(.730)	0.231
10. Course availability	2.350	(.997)	2.350	(.961)	2.360	(1.277)	0.989
11. Financial aid available	2.540	(1.145)	2.510	(1.128)	2.770	(1.301)	0.889
18. Financial aid staff	2.560	(1.102)	2.580	(1.125)	2.330	(.888)	0.100 *
9. Job-placement	2.700	(.700)	2.744	(.688)	2.460	(.776)	0.224

Note. *p < .05, two-tailed. **p < .01, two-tailed. SD=Standard Deviation

comments were related to specific problems of physical accessibility within the college buildings. Five dissatisfied comments related to the attitude of security personnel. Four dissatisfied comments related to the lack of parking or it's location. Three comments related to negative attitudes of other students. Two comments related to the conduct of personnel within a department for hearing impaired students and personnel in the math and writing labs. In summarizing the comment section, it appeared most comments had an "affective" component, with the attitudes of personnel from varying departments being problematic for these students.

Retention Variables effects on Persistence

The retention variables included in this study were: a) Intent to persist, b) College GPA, c) Institutional commitment, d) Encouragement, e) Goal commitment, f) Academic integration, g) Financial attitude, h) Social integration, and i) Disability. Since none of the background variables were significant ($p > .05$) they were not included in the Multivariate Analysis of Variance (MANOVA), except college GPA which is similar to other retention studies which excluded numerous background variables (Allen, 1995; Stahl & Pavel, 1993) To test the of assumptions of MANOVA of independence of observations, multivariate normality, homogeneity of covariance matrices Stevens (1986) steps were followed. It was found multivariate normality assumption was met based on normal Q-Q plots of probability. Homogeneity of covariance of matrices assumption has been met based on Bartlett-Box univariate homogeneity of variance test ($F=1.104, p=.30$) (Stevens, 1986; Tabanchick, 1983). This indicates the differences between the persisters and

non-persisters was due to between group differences rather than within group differences. A prior ordering of the dependent variables was based on theory derived from Cabrera et al., (1993). Roy-Bargman step-down method was used to determine the effects of the 10 variables on persistence. Stevens (1986) recommends this method of analysis of covariance because it reveals the comprehensive effects of the independent variable and answers the question "How much does a given dependent variable add to discriminate the groups?". The most conservative method for evaluation for significance is to set the nominal level for the first variable at .05 and .025 for the other 9 retention variables. Therefore, the probability has to be below .025 level to be significant for all dependent variables except the first one. This method takes into account error (Stevens, 1985).

Disability was entered last since this was a new construct. When new concepts are added to more proven variables, Stevens (1985) recommends adding them last in order for them to demonstrate their incremental importance to the phenomenon under study. Intent to persist was the only significant variable ($F=155.49$, $MS=.909$, $p < .05$). Bean & Metzner (1985), found College GPA and intent to persist to be the two strongest predictors of persistent behavior. In this study, GPA was non-significant ($p > .025$).

Summary of Student Comments Related to Retention Variables

In this section of the SOS additional questions were asked if there were other factors that positively or negatively influenced students' educational pursuits and any other comments. Of the 109 comments for the positive influences towards persistence: 20% of the comments related to desire or determination to complete college, 18% of the

comments related to family or friends, 15% of the comments related to the desire to have a better job or more money, 12% of the comments related to instructors, 12% of the comments related to services available at dSRC, 10% of the comments related to the knowledge gained, 5% of the comments related to age or life experiences, 4% of the comments related to work, 3% of the comments related to other students, less than 1% of the comments related to financial aid. Of the 64 comments for the negative influences towards persistence: 19% related to financial difficulties, 17% related to medical or health problems, 14% related to instructors, 11% related to internal factors of responsibility or motivation, 9 % related to family, 6% related to work conflicts, 6% related to transportation difficulties, 3% of the comments were related to each of the following: poor grades, other responsibilities, and personnel. Two percent of the comments were related to each of the following: other students, age, course times, lack of special equipment, and difficulty of the coursework.

Additional Comments Section

Question 31 of section II allowed for any additional comments. Of the open ended comments, 80% were positive comments. Of the positive comments 40% related to services and personnel at dSRC, 26% related to the college in general, 10% related to desire or determination, and 10% related to instructors. Other positive comments related to the location of the college, financial aid, college programs offered by the college.

Overall, 20% of the open ended comments were negative. The negative comments included financial difficulties, departmental personnel and program requirements.

Table 3

Summary of Multivariate Analysis of Variance for Retention Variables

Source	df	F	Probability
Intent to Persist	1	15.494	.000*
College GPA	1	0.969	0.327
Institutional Commit.	1	0.011	0.917
Encouragement	1	0.858	0.356
Goal Commit.	1	0.191	0.663
Academic Integration	1	0.134	0.715
Financial Attitude	1	3.961	0.049
Social Integration	1	0.024	0.878
Disability	1	0.052	0.820

Note: * $p < .05$, two-tailed.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter is comprised of a general overview of the study and an discussion of the results. The conclusions drawn from the results are discussed. In addition, recommendations for future research are included in this chapter.

Summary

The purpose of this study was to evaluate the status of disabled community college students, compare local findings with national trends, discover which disability type is most prevalent in this group, evaluate student satisfaction and evaluate retention variables of persistence for disabled students at this college. The subjects in this study were obtained from a large southwestern community college. They had varying disability types. There were 72 females and 47 males for a total of 119 subjects, which was 48% of all disabled students at this institution.

Data consist of archival data, and responses from the Student Opinion Survey (see Appendix C). The demographic data were reported in descriptive terms. Student's level of satisfaction was evaluated descriptive terms. Differences between the groups were evaluated for significance using a two-tailed t -test. The effects of the retention variables on persistence were evaluated using Multivariate Analysis of Variance (MANOVA).

Descriptive Data

A typical profile of students with disabilities at this community college would tend to fit a nontraditional student profile (Hossler, Bean & Assoc., 1990). However, with standard deviations of 10 or greater, the students varied on these two items. The students involved in this study on average were 30 years old, the majority are part-time students with one or others to care for in their home. These students on average study four hours per week. They missed few classes per semester and for persisters these absences tended to relate to medical reasons. Non-persisters missed on average as many days. However, these absences related more to family, work and other reasons. This finding is surprising and warrants further investigation. For non-persisters, researchers could look towards Bean and Metzner's (1985) retention variable of environmental pull. This variable would explain that for non-persisters, factors outside this college demanded time and attention from these students. These demands pulled the students resources away from the college environment. However, why disabled persisters missed more often due to medical reason and were able to continue their education is a unique finding.

These students picked this college as their first or second choice. In addition, Bean and Metzner (1985) found that high school GPA and standardized test scores do not predict how well nontraditional students will perform at college. For these subjects, high school GPA did not determine who persisted.

These students tend to work around six hours per week. Which does not fit the standard profile of the nontraditional student who is a full-time worker and a part-time

student. However, the standard deviation ranged from 10 to 13. This finding indicates their might be sub-groups within persisters and non-persisters.

Parents of these students have 12 to 13 years of education. The educational level of the parents of these students did not differentiate who persist and who did not persist. This finding is not surprising since these student tend to fit the nontraditional student profile.

In contrast to other findings, the heavier financed students in this study tended to be persisters. While traditional funding is available to these students such as student loans, grants and scholarships, 62% of persisters versus 36% of non-persisters received funding from Vocational Rehabilitation Department. This additional funding represented the largest differences in funding sources. In addition, more non-persisters paid for their own educational expenses (57% versus 32%) which was the next largest difference between the two groups.

The findings from the demographic data that relates to funding tends to support the hypothesis that a well financed student will persist more so than less financed students (Astin, 1993). While Hossler, Bean and Associates (1990) felt that heavy financial assistance might indicate a student who has come from an educationally disadvantaged background. These students seem to persist when they have financial assistance from numerous sources other than paying for college themselves.

Students were asked why they were attending college. One of the modifications to the SOS was reason for attending college: re-training for second career, training for first

career, personal enrichment and other were potential answers. More persisters were training for their first career versus non-persisters which were displaced from their first career and were re-training for a second career. The effects of training for a first career versus re-training on persistence is unknown. However, this finding warrants further investigation.

Overall Retention and Disability Types

The college has experienced a five percent increase in students with disabilities compared to last year. The overall retention rate for these students is 83%. This is much higher retention rate than the 41% expected from the literature on community colleges with "open door" policies (Noel et al., 1985).

Of the eight types of disabilities, learning disabilities was the highest reported at this college. This finding is congruent with Henderson's (1995) findings on a national level.

Student Satisfaction

Overall disabled students at this community college are satisfied with this organization. However, classrooms, physical accommodations and the financial aid personnel were problematic for non-persisters. Additionally, this organization can improve the areas of least satisfaction from the rank ordering of most satisfying to least satisfying characteristics of this college. Knowledge gained, the college in general and advisement were the highest ranked items. The findings from this study tend to support Bean and Metzner's (1985) and Stahl and Pavel (1992) that these factors are the most important to older or non-traditional students. In addition, 80% of the additional

comments made by these students indicated that they valued the additional services provided by this college for disabled students at dSRC.

Retention Variables

The retention variables used in this study included; intent to persist, current college GPA, encouragement, institutional commitment, social integration, academic integration, goal commitment, institutional commitment and financial attitude. In this study, the intent to persist was the only retention variable that related to persistent behavior. It was significant at the .05 level. In the step-down method used for this study the first variable the significance level is set at .05 there after, a level of .025 is used. While college GPA was the next leading cause of variance, it was not significant at the .025 level. This finding is not congruent with Bean and Metzner's (1985) findings in which current GPA was a predictor of persistence.

Qualitative Summary

Troublesome college characteristics or services were the parking areas and number of parking sites for disabled students, negative attitudes of other students, and the conduct of personnel in two departments that provide services to students. The leading comment for positive influence towards persistence was a desire or determination to complete college. The leading negative influence towards persistence was financial difficulties.

The general comments overall were positive and related to either the dSRC department or the college in general. The negative comments related to the financial aid, medical needs, instructors, department personnel.

Conclusions

Students with disabilities are increasingly enrolling in this community college. This local trend fits with national trends (Henderson, 1995). The largest group of disabled students have the hidden disability of a learning disabled. Henderson's (1995) prediction that this group is the rapidest growing group and will continue to be so over the next decade rings true at this college.

It appears this community college is not only called upon to meet the needs of these students, with an 83% retention rate, it is doing so successfully. This college seems to provide services that are important to these students.

Since the assumptions of multivariate normality and homogeneity of covariance of matrices were met it appears that it was appropriate to employ MANOVA on the retention data set. Based on the results of the MANOVA analysis of data, it is concluded that the intent to persist is a significant predictor of persistent behavior. Furthermore, the meaning of the lack of a statistically significant contribution of any of the remaining retention variables is ambiguous due to the small sample size. While this study revealed little information about the effects of the retention variables on persistence, some practical significance may be gleamed from this study.

Determination or desire was the leading positive factor reported by the students. Funding, support from instructors and family, the desire to have a better occupation and increased income, and the services from the dSRC department were motivating influences of persistence reported by these students in the qualitative areas of the SOS.

Recommendations

The intent to persist was the only significant retention variable, which is disappointing. However, one must keep in mind the small sample size, unequal group sizes and the population studied. Little literature exist regarding all students with disabilities. This study might serve as a beginning point for future research. After completion of this study, this researcher would make the following recommendations:

1. Increase the number of subjects. While this study included 48% of all students with disabilities at this college, the number of subjects limited the statistical analysis. More students could be obtained from across the nation and varying institutional types. Since this sub-population of college students is growing and retention of students is essential for college census stability a broader perspective is warranted.
2. The modifications to this questionnaire indicated three new areas of interest: the financial aid differences between the persisters and non-persisters, training for first career versus retraining differences between the groups and why these students missed class. Future research needs to further explore the effects of these items on retention for this type of college student.
3. The student opinion section of the SOS revealed the students most satisfied service to the least satisfied service. It would be interesting to evaluate this from a multi-institution perspective. In addition, the physical arrangement of the classrooms and physical accommodations were statistically significant.

4. In addition, the comments from this section indicates that an affective comments needs to be added to the student opinion section of the instrument. Attitudes of two departmental personnel was the most frequent negative student comment in this section of the survey.
5. Since this researcher found the intent to persist as the only significant retention variable, issues are raised over the use of this type of instrument. While this instrument measured level of student satisfaction ($\alpha=.92$) it did not effectively reveal significant retention variables for disabled college students. Desire or determination was not evaluated in this study. However, since this was the most frequently stated positive factor influencing persistence, students felt this was an essential element in their success. For this group of students, motivation to succeed may be one of the retention variables that directly or indirectly effects persistence. This factor might be a variable in persistence that is not endogenous to the current models. Consequently, future research could include a retention variable related to motivation to succeed to help explain persistence in this group of students.
6. To evaluate which retention model best explains persistence in this group, future researchers could include larger numbers of disabled college students. With an increase in subjects, one could conduct a Linear Structural Relations (LISERAL) analysis. Since persistence is a complex phenomena a LISERAL analysis could aid in unraveling the relationships among the exogenous and

endogenous variables (Pedhazur, 1973). In addition, Exploratory Factorial Analysis can be conducted to make suggestions revision to the current models. This would improve the goodness of fit for retention models for disabled college students. This would allow researchers to develop a model that fits with this population of college students. With increased subjects, more control variables and utilization of different statistical analysis, causation could be inferred, which was a limitation of this study.

7. Since this study was limited to retention from one semester to the next, if longitudinal studies were conducted, findings might be quite different.
8. The qualitative sections of the SOS instrument revealed valuable information about these students. This researcher recommends the inclusion of this type of data collection in future studies of retention with disabled students.

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Figure 1. Student Attrition Model. Reprinted with permission from Hossler, Bean, and Associates, (1990). The strategic management of college enrollments. Copyright @ 1990 Jossey-Bass inc., Publishers. All rights reserved.

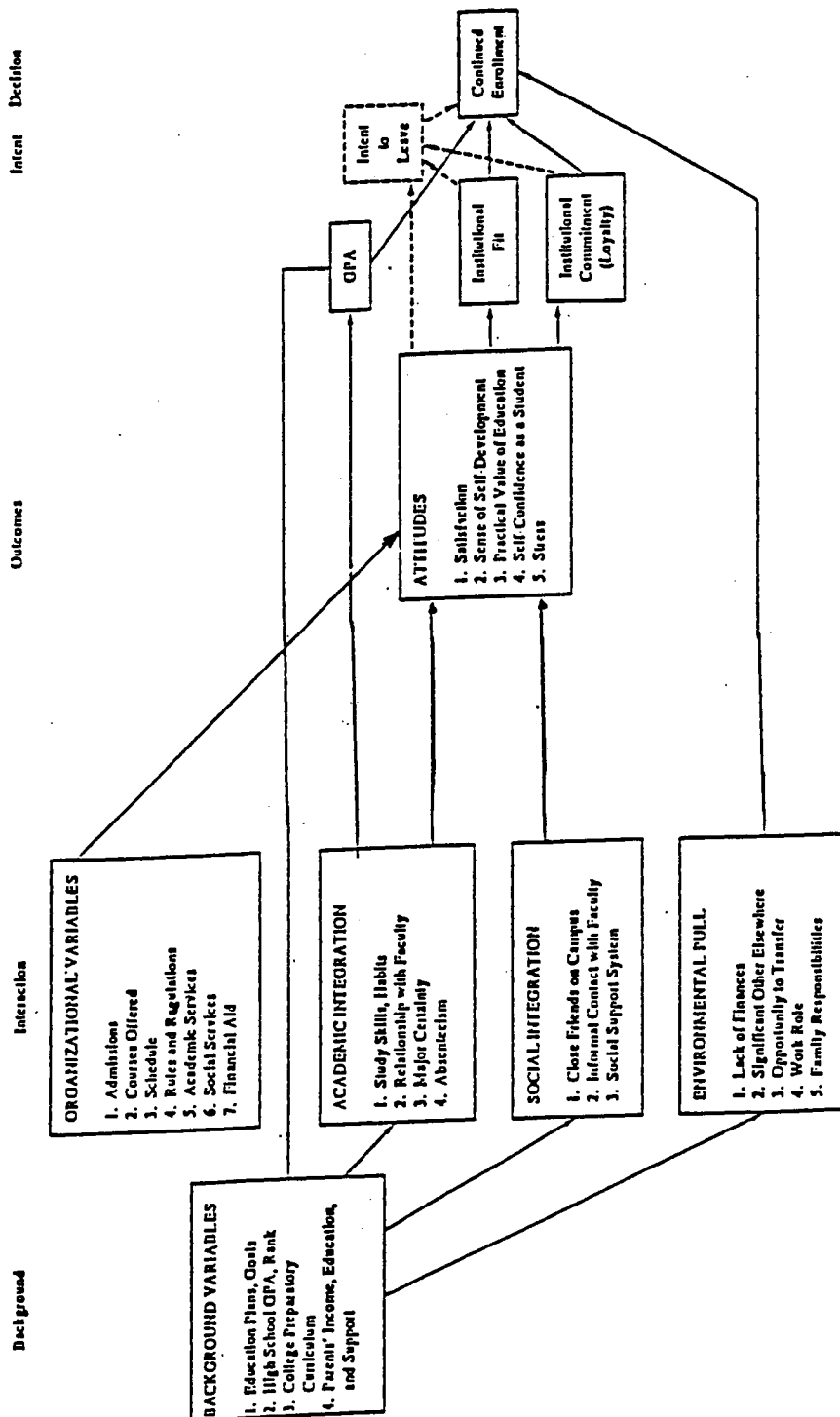
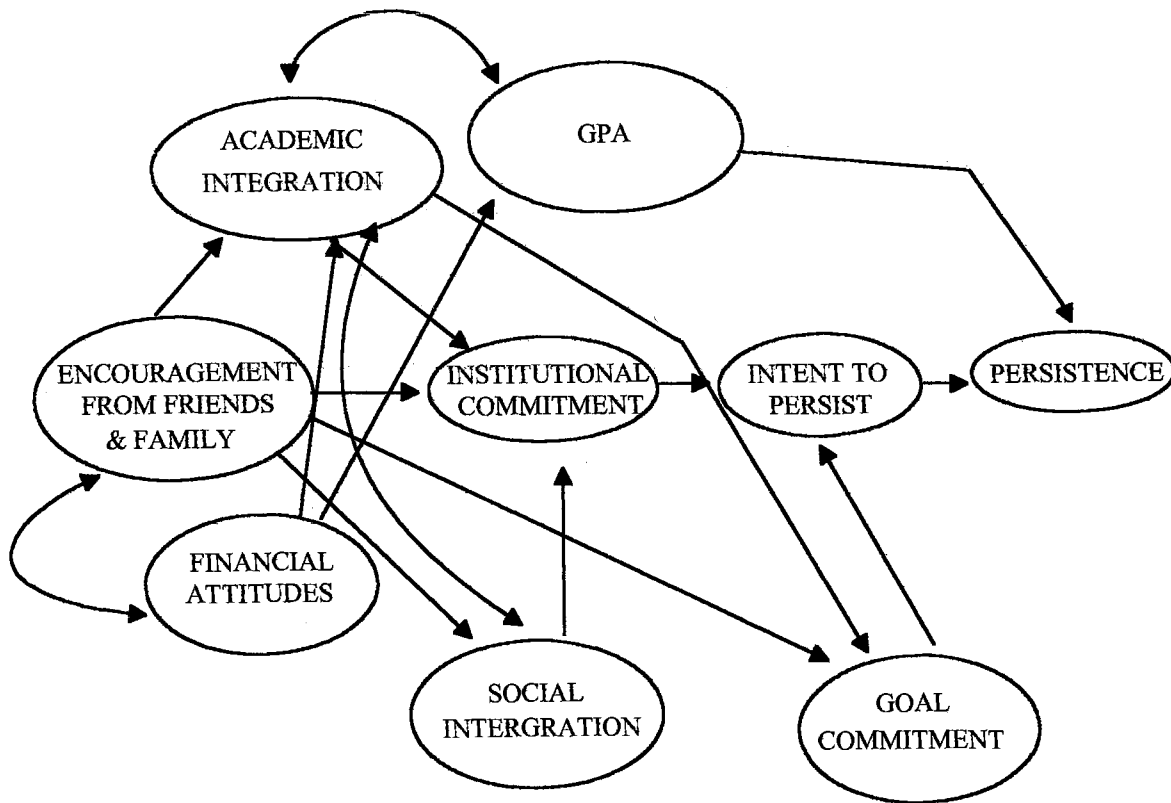


Figure 2. Integrated Retention Model. Reprinted with permission from Cabrera, Castaneda, Nora & Hengstler, (1992). The convergence between two theories of college persistence. Copyright @ 1992, Journal of Higher Education.



APPENDIX A

Cover letter for Student Opinion Survey

Cover letter

<DATE><STUDENT_S_NAME>
<STUDENT_S_STREET_ADDRESS>
<CITY,_STATE,_ZIP_CODE>

Dear Tulsa Junior College Student,

Enclosed you will find a Student Opinion Survey, this survey is part of a study designed to determine persistence in disabled community college students. The questionnaire enclosed asks you to complete demographic information about yourself, your attitudes, and your opinion of student services at this college. In addition, there are two areas to add any comments. Attached to the survey you will find a self addressed, postage paid envelope.

The completion of this survey is completely voluntary. However, your decision to take time to complete the survey will provide important information about why students with disabilities re-enroll in college. Your responses will be completely anonymous; no attempt will be made to identify your name with your responses. The results of this study will be reported as group data, not individuals.

Completed surveys will be entered in a random drawing for three cash prizes of: \$50.00, \$30.00, and \$25.00. The drawing will take place one week after the deadline for returning the surveys. The three randomly selected winners will be notified and cashiers checks will be sent to them.

If you need assistance in reading the survey or have any questions about the survey, please feel free to contact the disAbled Student Resource Center at 595-7115.

Thank you for your participation in this study. I am requesting completed surveys to be returned in two weeks.

Sincerely,

Sharon Zang
Oklahoma State University
Applied Behavioral Studies
(405) 744-6040

APPENDIX B

Survey of ASU Freshmen Experience (Allen, 1994)

Angelo State University
Survey of ASU Freshmen Experiences

Dear Student:

We need your help! To assist us in providing the best possible service, we need to know more about your opinions. Ultimately, this survey is about why students stay or leave ASU. We would appreciate it if you would complete all sections of this confidential questionnaire. It requires less than 10 minutes of your time.

Please return it in the self-addressed, postage paid envelope by August 12, 1993, to insure that you are included in our random prize drawing for a new AT&T Telephone and Answering Machine.

Thank you.

Dr. Dave Allen, Director
 Institutional Planning, Research and Assessment

Survey _____

SECTION I - OPINIONS

For the following items, please indicate the degree to which you agree or disagree with each statement. (CIRCLE ONE NUMBER FOR EACH LINE)

	<i>Strongly Agree</i>	<i>Agree</i>	<i>Neither Agree nor Disagree</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
1. I am satisfied with my social life at ASU	1	2	3	4	5
2. I have found making friends at ASU more difficult than I expected	1	2	3	4	5
3. My education at ASU will help me to be admitted to other schools	1	2	3	4	5
4. I am satisfied with my academic experience	1	2	3	4	5
5. I am certain ASU is the right choice for me	1	2	3	4	5
6. My close friends encourage me to continue attending ASU	1	2	3	4	5
7. I feel I belong at ASU	1	2	3	4	5
8. Being a student at ASU is a pleasant experience	1	2	3	4	5
9. My education at ASU will help me secure future employment	1	2	3	4	5
10. It is likely that I will leave ASU to be closer to someone I care a great deal for	1	2	3	4	5
11. I am able to take the courses I want	1	2	3	4	5

	<i>Strongly Agree</i>	<i>Agree</i>	<i>Neither Agree nor Disagree</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
12. My family encourages me to get a college degree	1	2	3	4	5
13. It has been easy for me to meet and make friends with other students at ASU	1	2	3	4	5
14. I am satisfied with the extent of my intellectual development since enrolling at ASU	1	2	3	4	5
15. Most of the faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to students	1	2	3	4	5
16. Since coming to this university I have developed close personal relationships with other students	1	2	3	4	5
17. Most of the faculty members I have had contact with are genuinely outstanding or superior teachers	1	2	3	4	5
18. I am satisfied with the opportunity to meet and interact informally with faculty members, academic advisors and academic staff	1	2	3	4	5
19. The student friendships I have developed at ASU have had a positive influence on my intellectual growth and interest in ideas	1	2	3	4	5
20. I am satisfied with the amount of financial support (grants, loans, family, jobs) I have received while attending ASU	1	2	3	4	5
21. Most faculty, academic advisors and college administrators at ASU have values and attitudes similar to my own	1	2	3	4	5
My nonclassroom interactions with faculty, academic advisors and college administrators have had a positive influence on my:					
22. <u>intellectual growth and interest in ideas</u>	1	2	3	4	5
23. <u>personal growth, attitudes and aptitudes</u>	1	2	3	4	5
24. <u>career goals and aspirations</u>	1	2	3	4	5
25. My interpersonal relationships with other students have had a positive influence on my personal growth, attitudes and values	1	2	3	4	5
26. My family approves of my attending ASU	1	2	3	4	5

	<i>Strongly Agree</i>	<i>Agree</i>	<i>Neither Agree nor Disagree</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
27. It is important for me to get a college degree . . . 1	2	3	4	5	
28. I have good study skills 1	2	3	4	5	
29. I have discussed leaving ASU with my family or friends 1	2	3	4	5	
30. My best friend(s) encourage me to get a college degree 1	2	3	4	5	
31. I am certain of my career plans 1	2	3	4	5	
32. I am satisfied with the prestige of ASU 1	2	3	4	5	
33. It is important for me to finish my program of study. 1	2	3	4	5	
34. I am confident I made the right decision in choosing to attend ASU 1	2	3	4	5	
35. It is very important for me to graduate from ASU as opposed to some other school 1	2	3	4	5	
36. Most students at ASU have values and attitudes similar to my own 1	2	3	4	5	
37. My academic experience has had a positive influence on my intellectual growth and interest in ideas 1	2	3	4	5	
38. It is difficult for me to transfer to another college, university or junior college 1	2	3	4	5	
39. My education at ASU will help me get a better job than an education from other institutions . . . 1	2	3	4	5	
40. Most of the faculty members I have had contact with are genuinely interested in students 1	2	3	4	5	
41. I am certain what I want to major in 1	2	3	4	5	
42. My family encourages me to continue attending ASU 1	2	3	4	5	
43. My close friends rate ASU as a quality institution 1	2	3	4	5	
44. I have performed academically as well as I anticipated I would 1	2	3	4	5	
45. I am satisfied with my course curriculum 1	2	3	4	5	
46. My grades reflect my academic performance . . . 1	2	3	4	5	

	<i>Strongly Agree</i>	<i>Agree</i>	<i>Neither Agree nor Disagree</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
47. Financial aid is important for my continuation at ASU	1	2	3	4	5
48. It has not been difficult to finance my college education	1	2	3	4	5
49. I have not experienced financial difficulty while at ASU	1	2	3	4	5
50. I have been satisfied with the financial aid programs at ASU	1	2	3	4	5
51. I am a serious student	1	2	3	4	5
52. I am in school because my parents persuaded me	1	2	3	4	5
53. I am strongly committed to achieving a college degree	1	2	3	4	5
54. It would not take much for me to abandon my college degree program	1	2	3	4	5
55. Depending on how things go, it is quite likely that I may have to revise my goal of getting a college degree	1	2	3	4	5
56. I think getting a college degree is a good goal to shoot for	1	2	3	4	5
57. I set goals for myself and achieve them	1	2	3	4	5
58. I desire to be with a friend(s) at another college	1	2	3	4	5
59. There has been at least one ASU employee (i.e., faculty or staff) who really cares about me	1	2	3	4	5
60. I have no idea at all what I want to major in	1	2	3	4	5
61. When I commit to a goal I usually achieve it	1	2	3	4	5
62. It is likely that I will re-enroll at ASU this fall	1	2	3	4	5
63. If you disagree with the above statement, have you decided <u>not</u> to return to ASU this fall? 1) yes 2) no					
64. If yes, in what month did you decide? _____					
65. Are you planning on enrolling in another college or university this fall? (CIRCLE ONLY ONE) 1) yes, in-state 2) yes, out of state 3) no					
66. If you plan to transfer to another college, what degree program will you pursue? _____					

 SECTION II - COLLEGE ATTRIBUTES

Listed below are various aspects of ASU. Please indicate your level of satisfaction:

	<i>Very Satisfied</i>	<i>Satisfied</i>	<i>Neutral</i>	<i>Dissatisfied</i>	<i>Very Dissatisfied</i>
1. My overall experience at ASU	1	2	3	4	5
2. Residence halls in general	1	2	3	4	5
3. Learning environment	1	2	3	4	5
4. ASU meal plan	1	2	3	4	5
5. Courses	1	2	3	4	5
6. Faculty	1	2	3	4	5
7. Staff	1	2	3	4	5
8. Counselors	1	2	3	4	5
9. Academic advisors	1	2	3	4	5
10. Living conditions in residence halls	1	2	3	4	5
11. Administration of ASU	1	2	3	4	5
12. Knowledge gained from ASU	1	2	3	4	5
13. Job opportunities on campus	1	2	3	4	5
14. Job opportunities off campus	1	2	3	4	5
15. Residence halls rules and regulations	1	2	3	4	5
16. Classrooms	1	2	3	4	5
17. General condition of buildings and grounds	1	2	3	4	5
18. Availability of courses you want at times you can take them	1	2	3	4	5
19. Admissions staff	1	2	3	4	5
20. Financial aid availability	1	2	3	4	5
21. General registration procedures	1	2	3	4	5
22. Scholarship availability	1	2	3	4	5
23. Concern for you as an individual	1	2	3	4	5
24. This college in general	1	2	3	4	5

 SECTION III - BACKGROUND INFORMATION

1. Sex a) male b) female
2. Race: a) White b) Black c) Hispanic d) Asian e) Indian f) Other
3. What is your zip code of permanent address? _____
4. What is your best estimate of your parents' total income last year?
Consider income from all sources before taxes. (CIRCLE ONLY ONE)
- | | |
|-----------------------|----------------------|
| A. Less than \$14,999 | D. \$35,000 - 49,999 |
| B. \$15,000 - 24,999 | E. \$50,000 - 74,999 |
| C. \$25,000 - 34,999 | F. \$75,000 or more |
5. What is the highest level of formal education obtained by your parents? (CIRCLE ONLY ONE)
- | | |
|---|---|
| Father's formal education:
A. Some high school or less
B. High school graduate (or GED)
C. Some college
D. College degree
E. Some graduate education
F. Graduate degree | Mother's formal education:
A. Some high school or less
B. High school graduate (or GED)
C. Some college
D. College degree
E. Some graduate education
F. Graduate degree |
|---|---|
6. During your freshman year, how many hours per week did you typically work? _____
7. How many children or relatives are living with you for whom you are responsible? _____
8. How many campus organizations did you belong to your freshman year? _____
9. About how many classes did you miss during the spring semester due to reasons other than medical? _____
10. If you commuted to campus, how long did it take you? _____ (minutes)
11. During the spring semester, where did you live? (CIRCLE ONLY ONE)
- a. Home with parents/family b. Apartment c. Residence Hall d. Other
12. At the time you applied for admission, ASU was your _____ choice. (1st, 2nd, 3rd, etc.)

13. What is the highest academic degree that you intend to obtain? (CIRCLE ONLY ONE)

- | | |
|-------------------------------------|---------------------------------------|
| a) None | c) Master's degree (MA, MS, etc.) |
| b) Vocational Certificate | f) Ph.D or Ed.D. |
| c) Associate (A.A. or equivalent) | g) Professional degree (MD, JD, etc.) |
| d) Bachelor's degree (BA, BS, etc.) | h) Other (Specify) _____ |

14. On the average, how many hours per week did you spend studying your freshman year?
(CIRCLE ONLY ONE)

- | | | |
|--------------|--------------|---------------|
| a) 0 - 4.9 | d) 15 - 19.9 | g) 30 - 34.9 |
| b) 5 - 9.9 | e) 20 - 24.9 | h) 35 - 39.9 |
| c) 10 - 14.9 | f) 25 - 29.9 | i) 40 or more |

SECTION IV - COMMENTS

A. What services can ASU provide to help students continue their education at this university?

Thank you again for your cooperation!

Please Return in the postage paid envelope by August 12, 1993 to:

Dr. David F. Allen
Director, Institutional Research
Angelo State University
P.O. Box 11008, ASU Station
San Angelo, Texas 76909
(915) 942-2259

APPENDIX C

Student Opinion Survey

Section I- Background Information. Please Complete all sections of this survey

Sex: a) Male b) Female Age: _____

Type of Disability _____

Number of college hours currently enrolled for fall 1995 _____

How many hours per week do you typically work during school ? _____

How many children or "others" are you responsible for ? _____

About how many classes did you miss fall, 1995 for: Medical _____, Family _____,
Work _____, Other _____, explain _____

At the time you applied for admission, this college was your _____ choice (1st, 2nd, etc.).

What is the highest academic degree that you intend to obtain (circle only one)

- | | |
|---------------------|---------------------------------------|
| a) none | e) master degree |
| b) certificate | f) Ph.D. |
| c) associate degree | g) professional degree (MD, JD, etc.) |
| d) bachelor degree | h) other (specify) _____ |

On average how many hours per week did you spend studying this semester ?

- | | | |
|------------|------------|---------------|
| a) 0-4.9 | d) 15-19.9 | g) 30-34.9 |
| b) 5-9.9 | e) 20-24.9 | h) 35-39.9 |
| c) 10-14.9 | f) 25-29.9 | I) 40 or more |

What is the highest level of formal education obtained by your parents : Mother _____, Father _____

Your high school GPA _____ Overall college GPA _____, Est. Fall 1995 GPA _____

The reason you are attending college:

- a) training for first career
- b) re-training for new career (displaced from first career)
- c) personal enrichment
- d) other (specify) _____

Type of educational funding : (please circle all that apply) a) vocational rehabilitation,
b) federal grants and loans, c) scholarship, d) family, e) self

Section II- Opinions

For the following items, please indicate the degree to which you agree or disagree with each of the statements (circle on number for each line)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. I have found making friends more difficult than I expected.	1	2	3	4	5
2. I am satisfied with the amount of financial support (grants, loans, etc.) I am receiving.	1	2	3	4	5
3. My family approves of my attending this particular college.	1	2	3	4	5
4. I think getting college education is a good goal.	1	2	3	4	5
5. Most of the Faculty members I have contact with are interested in students.	1	2	3	4	5
6. My relationships with other students has had a positive influence on my personal growth, attitudes and values.	1	2	3	4	5
7. It is very important for me to graduate from this college opposed to some other school.	1	2	3	4	5
8. My family encourages me to continue attending college.	1	2	3	4	5
9. I am strongly committed to achieving my educational goal.	1	2	3	4	5
10. Since coming to this college I have developed close personal relationships with other students.	1	2	3	4	5
11. I am certain of my career plans.	1	2	3	4	5
12. Being a student at this college is a pleasant experience.	1	2	3	4	5
13. I find it difficult to concentrate on school because of my personal life.	1	2	3	4	5
14. It has NOT been difficult to finance my college education.	1	2	3	4	5

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
15. There has been at least one college employee (Faculty or staff) who really cares about my success.	1	2	3	4	5
16. I am in college because some "other" (counselor, parent, etc.) persuaded me.	1	2	3	4	5
17. Financial aid is important for my continuation at college.	1	2	3	4	5
18. My college GPA accurately reflects my academic abilities.	1	2	3	4	5
19. It has been easy for me to meet and make friends with other students.	1	2	3	4	5
20. It would not take much for me to abandon my college education.	1	2	3	4	5
21. I am comfortable at this college.	1	2	3	4	5
22. It is important for me to finish my educational.	1	2	3	4	5
23. I have performed academically as well as I anticipated .	1	2	3	4	5
24. My disability has not deterred me from obtaining my educational goals.	1	2	3	4	5
25. I have not experienced financial difficulties while in college.	1	2	3	4	5
26. It is likely I will re-enroll next semester.	1	2	3	4	5
27. If you are not planning to re-enroll next semester, explain _____ _____					
28. Do you feel your disability has influenced your decision to enroll next semester? a) yes b) no Explain _____					
29. What are other factors that have positively influenced your educational pursuits ? _____ _____					
30. What are other factors that have negatively influenced your educational pursuits ? _____ _____					
31. Please add any comments for this section of the survey _____ _____					

Section III- College Attributes

Please indicate your level of satisfaction by circling one of the following levels for each question.

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
1. My overall college experience.....	1	2	3	4	5
2. The learning environment.....	1	2	3	4	5
3. Variety of courses offer.....	1	2	3	4	5
4. Quality of instructors.....	1	2	3	4	5
5. Academic advisors/ counselors.....	1	2	3	4	5
6. Administration.....	1	2	3	4	5
7. Classrooms.....	1	2	3	4	5
8. General condition of buildings.....	1	2	3	4	5
9. Job-placement.....	1	2	3	4	5
10. Availability of courses you want at the times you need to take them.....	1	2	3	4	5
11. Financial aid availability.....	1	2	3	4	5
12. College personnel level of concern for you as an individual.....	1	2	3	4	5
13. Support labs.....	1	2	3	4	5
14. Knowledge gained.....	1	2	3	4	5
15. Campus accommodations.....	1	2	3	4	5
16. Attitude of other students.....	1	2	3	4	5
17. Student Services.....	1	2	3	4	5
18. Financial aid staff.....	1	2	3	4	5
19. Campus security.....	1	2	3	4	5
20. The college in general.....	1	2	3	4	5

If you are dissatisfied or very dissatisfied with one or more of the areas in section III can you please comment. In doing so, you may help fellow students and assist college staff with necessary changes

APPENDIX D

Letter Requesting Use of Copyright

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March 21, 1996

Journal of Higher Education
1070 Carmack Road
Columbus, Ohio 43210

Dear Margaret Starbuck,

I am writing to request permission to use a figure your journal has the copyrights to in my dissertation. I am a doctoral student, with Oklahoma State University, in the Applied Behavioral Studies Department. My dissertation is titled; The Determinants of Persistence in Disabled Community College Students.

I am requesting your permission to use Figure 2., from the following article; The Coverage between Two Theories of College Persistence written by Cabrera, A.F., Castaneda, M. B., Nora, A., and Hengstler, D.. This article was published in your journal, 1992, volume 63, number 2, pages 143-164.

I will correctly cite the authors and their works inside my dissertation. If you have any questions, you may contact me through my college or work phone numbers listed below. Thank you for your time and consideration in this matter.

Sincerely,

Sharon Zang
Oklahoma State University
Applied Behavioral Studies
(405) 744-5700
Work- (918) 595-7115

APPENDIX E

Permission Letter From Jossey-Bass

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PERMISSIONS AGREEMENT

Invoice# 3990

To: Sharon Zang
Tulsa Junior College
909 South Boston Avenue
Room 331B
Tulsa, OK 74119

March 29, 1996

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Karen DeLeo

Name

Karen DeLeo
Permissions Assistant

Signature Date

APPENDIX F

Letter Requesting Permission to Reprint Cabrera et al., 1992

March 21, 1996

Journal of Higher Education
1070 Carmack Road
Columbus, Ohio 43210

Dear Margaret Starbuck,

I am writing to request permission to use a figure your journal has the copyrights to in my dissertation. I am a doctoral student, with Oklahoma State University, in the Applied Behavioral Studies Department. My dissertation is titled; The Determinants of Persistence in Disabled Community College Students.

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I will correctly cite the authors and their works inside my dissertation. If you have any questions, you may contact me through my college or work phone numbers listed below. Thank you for your time and consideration in this matter.

Sincerely,

Sharon Zang
Oklahoma State University
Applied Behavioral Studies
(405) 744-5700
Work- (918) 595-7115

APPENDIX G

Permission to Reprint Cabrera et al., 1992 Figure

March 21, 1996

Journal of Higher Education
1070 Carmack Road
Columbus, Ohio 43210

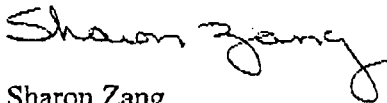
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I will correctly cite the authors and their works inside my dissertation. If you have any questions, you may contact me through my college or work phone numbers listed below. Thank you for your time and consideration in this matter.

Sincerely,



Sharon Zang
Oklahoma State University
Applied Behavioral Studies
(405) 744-5700
Work- (918) 595-7115

*Permission granted 3-26-96
Margaret Starbuck*

OHIO STATE UNIVERSITY PRESS
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1070 CARMACK ROAD
COLUMBUS, OHIO 43210

2

VITA

Sharon Zang

Candidate for the Degree

Doctorate of Philosophy

Thesis: ASSESSING PERSISTENCE IN DISABLED COMMUNITY COLLEGE STUDENTS

Major Field: Applied Behavioral Studies

Biographical:

Personal Data: The daughter of Robert and Mary Zang, sister of Cindy Woodward, mother of Brent and Evan Smarinsky.

Education: Graduated from Owasso High School, Owasso, Oklahoma in May 1974; received Associate Degree in Applied Science at Tulsa Junior College, Tulsa, Oklahoma in May 1980; Bachelor of Science degree in Psychology from Oklahoma State University, Stillwater, Oklahoma in December 1990; received Master of Science degree in Counseling and Student Personnel from Oklahoma State University, Stillwater Oklahoma in December 1992 Completed the requirements for the degree of Doctor of Philosophy with a major in Applied Behavioral Studies at Oklahoma State University in July 1996.

Experience: Employed as a Registered Nurse for Hospitals in Tulsa area; Flight Nurse for Oklahoma Teaching Hospitals, Oklahoma City; Nurse Clinician for both Oklahoma City and Tulsa Hospitals; Adjunct faculty at Tulsa Junior College, Tulsa, Oklahoma; Teaching Assistant, Oklahoma State University, University Center at Tulsa, Tulsa, Oklahoma.

Professional Memberships: Student Member of American Psychological Association, American Counseling Association, The Honor Society of Phi Kappa Phi.

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

Date: 04-25-96

IRB#: ED-96-121

Proposal Title: THE DETERMINANTS OF PERSISTANCE IN DISABLED
COMMUNITY COLLEGE STUDENTS

Principal Investigator(s): James Seals, Sharon Zang

Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

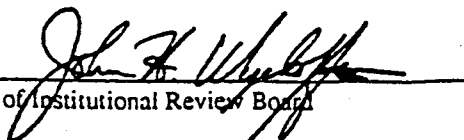
ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD
AT NEXT MEETING.

APPROVAL STATUS PERIOD VALID FOR ONE CALENDAR YEAR AFTER WHICH A
CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD
APPROVAL.

ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR
APPROVAL.

Comments, Modifications/Conditions for Approval or Reasons for Deferral or Disapproval
are as follows:

Signature:


Chair of Institutional Review Board

Date: April 30, 1996

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SMD#-178709
CUS#-23899

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PC#-15
05/19