An analysis of performance gap scores as measured by the Student Satisfaction Inventory : the relationship to retention
by Gloria Jean Lambertz

A thesis submitted in partial fulfillment of the requirements for the degree Of Doctor of Education
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Abstract:
This study assessed whether a student's decision to return or not return to Carroll College the following semester could be predicted by comparing performance gap scores on 11 comprehensive scales of institutional characteristics measured by the Student Satisfaction Inventory (SSI). Additionally, the researcher examined eleven scales identified in the SSI (Academic Advising, Campus Climate, Campus Life, Campus Support Services, Concern for the Individual, Instructional Effectiveness, Recruitment and Financial Aid, Registration Effectiveness, Responsiveness to Diverse Populations, Safety and Security, Service Excellence, Student Centeredness) for statistically significant differences among class levels and gender.

A literature review yielded research relevant to this study in areas of retention, enrollment management, consumer behavior principles, and student satisfaction.

The sample for the study was divided into two groups of students who responded to the SSI in the spring of 1997. The first (n= 386) were a group of freshmen, sophomores, juniors, and seniors. The second group (n=221) consisted of students who returned or did not return to Carroll College the following semester and who provided a valid social security number. Data were collected and performance gap scores were tabulated on 11 comprehensive scales of institutional characteristics. Multiple regression and analyses of variance were the statistical methods used for the analyses of the hypotheses. Newman-Keuls post hoc analysis was performed as a follow-up procedure for the ANOVAS that showed significance at the .05 level.

Findings indicated that a prediction could not be made on the decision to return or not return to Carroll College using the performance gap scores. Interaction was noted among class level and gender of the students. Significant differences were found between male and female students on 9 of the 11 scales of institutional characteristics. Also, significant differences were found among class level on 2 of the 11 scales of institutional characteristics. These findings provide information to Carroll College for making institutional changes.

It was concluded that the SSI could not be used to predict whether the students' decisions to return or not return could be predicted by comparing performance gap scores.

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by

Gloria Jean Lambertz

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This thesis has been read by each member of the graduate committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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ABSTRACT

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CHAPTER 1

INTRODUCTION

Student retention can be studied from various perspectives, including the benefits derived from student persistence. Retention of students impacts not only individuals and their personal success through an educational outcome, but also society, and the financial well being of institutions (Pate, 1993). When students become dissatisfied with their educational process, they are likely to drop out of college (Bean, 1990b). This dissatisfaction leads to failure to meet their educational goals. Along with not meeting their educational goals, students without a college degree earn a lower income (Bean, 1990b) than those students who complete a college degree.

Students are not the only ones impacted when they do not meet their educational goals. Society is also affected. Society loses by not having as many educated individuals going into the work force (Bean, 1990b).

Finally, and very critical to those colleges whose budgets are tuition driven, not retaining students can have a significant impact on whether their doors remain open (Bean, 1990b). It is important to look at what will help satisfy students and increase the likelihood of their persisting with a college education. Rowley, Lujan, and Dolence (1997) stated, “If a central purpose of higher education is to advance knowledge while helping to create a better society, then colleges and universities must respond to consumer demands in ways not yet perfected by present practice" (p. 54).

In both student numbers and abundant budgets the 1950s through the 1960s were boom years for higher education. As these boom years gave way to the retrenchment and demographic shifts of the 1970s and 1980s (Porter, 1990), institutions put self-preservation as a top priority. As the population increases in age and the pool of young college-age persons continues to change, colleges and universities grow to be even more concerned about competing for new students. The 100-year national average graduation rate of all college students is 50% (Boyle, 1989). As a point of comparison, the overall graduation rate after five years of college entrance is 44.6% (ACT, 1997). With the college dropout rate at 50%, and with enrollment forecasting becoming more difficult to predict (Healy, 1997), it is critical that colleges and universities look for ways to retain their students. The study of student persistence, or retention, is not new, but with an ever-changing student population from which to draw new students, the subject of retention has taken on a new urgency.

Colleges and universities are increasingly committed to stabilizing student enrollments by raising retention rates. The problems with retention were compounded by mistakes in college enrollment projections. When unexpected economic and educational trends changed the projected enrollment figures that were forecast by the Western Interstate Commission for Higher Education (1993), growth in student numbers at four-year colleges did not materialize (Healy, 1997). When those changes did not materialize, the institutions which are enrollment driven became more vulnerable than others (Billson & Terry, 1987). When limited resources are coupled with the cost of recruiting new students (Werth, 1988; Hossler, 1991) and the average drop-out rate of first-year students at private colleges at 29.9%, private colleges and universities need to analyze, thoughtfully, factors that will maximize retention at minimum expense. Since most private college budgets are tuition driven (Townsley, 1993), retention of students is vital. While the "cost of recruiting is often measured in thousands of dollars, the savings from retention of a full-time student can be measured in tens of thousands of dollars" (Bean, 1990b, p. 147). One might argue that recruitment of non-traditional students could help fill this gap. However, the problems associated with retention of non-traditional students in many ways are the same as retention of the traditional student (Healy, 1997).

Three interrelated factors have emerged over and over as predictors of first-year student persistence. These predictors are a felt sense of community, involvement of students in all aspects of the life at the institution, and academic/social integration (Tinto, 1993). Student satisfaction and how it relates to student persistence is becoming a more powerful predictor that will aid institutions in their retention efforts (Sanders & Burton, 1996).

When colleges address only a student's academics and fail to treat them holistically (Sanford, 1967), they fail to give the student a sense of community, which is Tinto's first predictor of first-year persistence. Successful learning depends on the student's whole personality, not just intelligence. It is the use of both attributes that helps to integrate the student into the campus community. Sanford (1967) said:

> In most of our universities and in many of our liberal arts colleges a majority of the students suffer from a lack of a sense of community, confusion about values, a lack of intimate friends, a very tenuous sense of self (including serious doubt about their personal worth), and the absence of a great cause, movement, service, religion, belief system, or anything else that they might see as larger than themselves and in which they could become deeply involved. (p. 14)

Student involvement, Tinto's second predictor of retention, is the amount of physical and psychological energy that a student devotes to his or her college experience. The correlation between student involvement in all aspects of life at the institution is a predictor of success in the freshmen year. Improved retention through student involvement has been researched and documented by many educators (Tinto, 1993; Astin, 1993; Bean, 1982).

Tinto's research on departure, which studied the student's social and academic integration, a third predictor of retention, used the framework of Arnold Van Gennep (1960), a Dutch anthropologist. Van Gennep, and now Tinto, divided the first year of college into three stages or three "rites of passage." The first stage that Van Gennep identified is rite of separation. In separation there is a decline or complete cessation of interactions between the individual and members of groups in which he or she previously interacted.

Van Gennep's second stage is transitional rites. This stage is characterized by ambiguity. In the transitional rite stage, the individual begins to interact with members of the new group. Here the student learns the knowledge and skills necessary to function in the new group. In the transitional rites stage the individual is challenged as to whether he or she will adjust to the demands of higher education.

Ceremonies or rituals that symbolically express membership into his or her new position characterize Van Gennep's last stage, incorporation. An example of new membership may include becoming a member of a fraternity or sorority, or it may include belonging to one of the many clubs or organizations typically found on a college campus. The duration of the phases differs from student to student and setting to setting.

Students need sufficient formal mechanisms that will assure that those social interactions with other students and faculty take place. Tinto (1987) stated that there is not one grand theory to explain all the reasons why a student would persist with his or her education, including his own model. His model has become accepted as most useful for explaining the causes of departure from college and emphasizes two conditions that help predict student retention: social and academic integration. Tinto (1993) reported that for a student to persist in his or her education there needs to be congruency between the student and the institution. The student's motivation and academic ability must be matched with the institution's academic and social characteristics in order for the student to be committed to remain at the institution. The institution must also be committed to the student's educational goals.

Somewhat similar to Tinto's model is Bean's Student Attrition Model. Bean's model was developed by synthesizing research on turnover in work organizations (Bean, 1980). He compared reasons for students' leaving institutions to similar reasons for why employees leave work organizations. As in work organizations where intent is related to behavioral intentions, persistence in college is connected to behavioral intentions. Behavioral intentions are those statements that students make regarding educational goals. The processes in which beliefs about educational goals shape attitudes and attitudes guide behavior, are referred to as behavioral intentions (Fishbein & Ajzen, 1975).

Astin (1984) stated that the amount of student learning and personal development is directly proportional to the quality and quantity of student involvement. For example, a student who is highly involved will devote energy to studying, to campus organizations, and to interactions with other students and faculty. It is important that colleges and universities aid the student in finding these opportunities for involvement. Involvement can occur through social and academic integration. In Astin's Theory of Involvement, rather than stressing the need for full integration, he believes that students can be alienated in some areas of the campus experience, but still persist because they are involved in another area such as athletics or music. Astin believes that the better the "fit" between the student and the institution, the more likely the student is to persist or achieve (Astin, 1985). Astin also believes, however, integration is a much more complex phenomenon than "fitting in." He believes integration requires a series of connections with various aspects of the college environment, which make it a community.

The foregoing three theories have the common theme of involvement as a predictor of student persistence. In addition to involvement, there are other variables that are predictors that affect academic and social integration. These variables include the following: high school GPA, financial aid support, and gender. Studies have been conducted measuring these variables (Pascarella & Terenzini, 1980; Cabrera, Nora, and Castaneda, 1993; Kennedy, 1995), and these variables have also been found to be predictors of persistence. It is essential that the relationships among the variables be established with clarity by looking at factors unique to an individual institution. Noel, Levitz, and Saluri (1985) stated that retention studies should define the unique characteristics of the campus. Baselines must be established for measuring gains in retention and identifying strengths of the institution. It is from these baselines that institutions will be able to make intelligent decisions when assessing their programs.

Students enter college with a set of expectations, and it is from these expectations that they are motivated (Hodgetts, 1982; Bank, Biddle, and Slavings, 1992). Given the students' investment of time, energy, and money, their perception or expectancy should be given substantial weight. Astin (1993) wrote: "Virtually all measures of satisfaction with the undergraduate experience are significantly related to the number of undergraduate years completed" (p. 278). Research has shown (Astin, 1993; Tinto, 1993; Bean, 1980) that academic and social integration of the student into college life are strong indicators for retention. The findings of Braxton, Vesper, and Hossler, (1995) also indicated that meeting student expectations positively influences both academic and social integration and becomes important to those concerned about retention. Braxton, Vesper, & Hossler (1995) said, "If such expectations are not met, then there is early disenchantment with these communities" (p. 596). Braxton, Vesper, and Hossler (1995) also stated, "Put differently, students with unmet expectations for college are unlikely to become integrated into the academic or social communities of the institution because they perceive that they were misled by the institution prior to matriculation" (p. 596).

Statement of the Problem

The problem of this study was to determine if the Student Satisfaction Inventory (Schreiner & Juillerat, 1994), and the "performance gap scores" derived from the data, could predict whether or not a student returned to Carroll College the semester after completing the survey. Performance gap scores were calculated. They are based upon the student's perception of the difference between his or her level of expectation and his or her level at which that expectation was met, called "satisfaction." Eleven different performance gap scores were calculated, each reflecting a comprehensive scale of institutional characteristics.

A secondary investigation attempted to gain a more thorough understanding of performance gap scores. For each of the eleven comprehensive scales, the differences between the means of gender and class level were studied. Tests for interaction were also investigated.

For purposes of this study, data regarding students at Carroll College, a four-year private liberal arts college, were collected. There were 12 comprehensive scales included in the instrument, but for purposes of this study only 11 of the 12 scales were used in the analyses of data.

The 12 comprehensive scales that measure institutional effectiveness include the following: Academic Advising Effectiveness, Campus Climate, Campus Life, Campus Support Services, Concern for the Individual, Instructional Effectiveness, Recruitment and Financial Aid Effectiveness, Registration Effectiveness, Responsiveness to Diverse Populations, Safety and Security, Service Excellence, and Student Centeredness.

The twelfth scale, Responsiveness to Diverse Populations was the only scale which exclusively measured satisfaction.

Importance was not measured due to the sensitive nature of the question within the scale and the implications of asking such questions to a majority population (Juillerat, 1995).

Significance of the Study

In response to the unpredictable number of graduating high school seniors that attend college and the high cost of recruiting students—from $1800 to $2400 per student (C. Cain, personal communication, August 22, 1997) colleges and universities are increasingly committed to achieving enrollment stability by increasing the student retention rate. The national average for retention of first-year college students at private institutions is 70.1% (ACT, 1997). Carroll College has a 75% retention rate of first-year students, which is slightly higher than the national average. Carroll's four-year graduation rate is 30%, and five-year graduation rate is 42% of entering freshmen. In spite of the fact that Carroll College's retention rate of first-year students is slightly higher than the national average, the administration is striving for a goal of an 80% retention rate for first-year students and a four-year graduation rate of 65% (R. Pastoor, personal communication, September 5, 1997). These numbers meet a level which the institution deems financially feasible and acceptable in order to reach its long-term goal for growth of the institution. This rate of retention is also based on a comparison of colleges similar in size and mission to that of Carroll College.

Carroll College depends heavily upon student tuition to fund its operating budget. In a recent study of 1,000 colleges, Townsley (1993) found that 73% drew their revenue from students. Seventy of these private colleges drew 94% of their revenue from student tuition (Townsley, 1993). Carroll College is one of those enrollment-driven private colleges and derives 85% of its budget from student tuition. Carroll College's dependence upon student tuition, coupled with the high cost of student recruiting, means that it is crucial that Carroll College maintain a high student retention rate after the freshman year. In an era of increasing college costs and less predictable numbers of college-bound high school graduates, it is also very important that Carroll College learn what expectations its students have regarding their educational experiences and to what degree these expectations are being satisfied.

Assessing student expectations and satisfaction is an important measurement of the needs and desires of students that institutions must address in order to understand student success, satisfaction, retention, and institutional effectiveness (Schmidt & Sedlacek, 1972; Astin, 1993; Bean, 1980; Spanbauer, 1992; and Tinto, 1993). Earwood-Smith and Colbert (1989) found that as student satisfaction increased, so did the rate of student retention. Regularly assessing a broad range of student outcomes should lead to continuous improvement in student and academic programs which, in turn, would lead to greater student satisfaction and greater student retention. Student satisfaction is a valid gauge of retention (Sanders & Burton, 1996). Earwood-Smith and Colbert (1989) stated, "A more productive research approach is to examine why college students stay instead of why they leave" (p. 14).

When applying for grants and other financial awards, institutions are frequently required to demonstrate that they are retaining their students in high numbers (Howard & Rogers, 1991). As part of receiving accreditation renewal, institutions must demonstrate that student assessment is a part of the institution's procedure (Dolence, 1991). Carroll College is preparing for its accreditation review which will take place in 2000.

For some years now Carroll College has been concerned with its retention numbers. In the past, information as to why students left Carroll

College has for the most part been speculative. With concrete data gained from a student expectation and satisfaction assessment, Carroll College can use its limited resources carefully and wisely, getting the most out of a strained budget. Also, with current data on student expectation and satisfaction, Carroll College can re-evaluate its short-term and long-term planning goals based on what students expect from their educational experience and how satisfied they are with that experience. Earwood-Smith and Colbert (1989) suggested that looking at students' "greatest satisfaction and greatest dissatisfaction is the basis for reordering institutional priorities" (p. 14). Cabrera, Nora, and Castaneda (1993) have said: "Institutions should constantly monitor whether an institution's intervention plan is having an effect on the persistence process" (p. 125). Assessment data will allow Carroll College to look systematically at ways to make changes to its educational and campus life programs that will eventually aid in the retention of its students and provide information for other institutions to utilize. Chaffee (1990) suggested using data to "quickly move from dissatisfaction to solution" (p. 61).

Definitions of Terms

The following definitions explain terms as they are used in this study:

1. Academic Integration—a condition or perception of fitting into and being able to keep up with the academic rigor of the

institution.

2. <u>Attrition</u>—the voluntary or involuntary student departure from an institution, not including graduation.

3. <u>Comprehensive Scales</u>—found within the Student Satisfaction Inventory, there are twelve comprehensive areas: Academic Advising Effectiveness, Campus Climate, Campus Life, Campus Support Services, Concern for the Individual, Instructional Effectiveness, Recruitment and Financial Aid Effectiveness, Registration Effectiveness, Responsiveness to Diverse Populations, Safety and Security, Service Excellence, and Student Centeredness. Each of these areas consists of a set of related questions.

4. <u>Importance Score Ratings</u>—measurements of how strongly students feel about the expectation for the given item, referred to as level of expectation.

5. <u>Negative Gap Score</u>—the importance score rating minus student satisfaction score rating resulting in a negative number. The negative number indicates the institution is surpassing the student's expectation.

6. <u>Performance Gap Score</u>—the importance score rating minus student satisfaction rating.

7. <u>Persistence</u>—the flow of students through college over a six-year period.

8. <u>Retention</u>—the continuation of a student's education from year to year.

9. <u>Satisfaction Score</u>—measurement of how satisfied students are that the institution has met their expectation.

10. <u>Social Integration</u>—a condition or perception of fitting into the social life of the campus.

11. <u>Student Satisfaction Inventory (SSI)</u>--developed by Laurie A. Schreiner, Ph.D., and Stephanie L. Juillerat, Ph.D. (1994), with assistance from USA Group Noel-Levitz. The assessment measures expectations of students and the satisfaction of students on twelve comprehensive scales.

    The survey also provides a means to measure the gap between expectations and satisfaction.

<u>General Questions to Be Answered</u>

1. Is there a relationship between the decision to return or not return to Carroll College and any of the performance gap scores derived from the Student Satisfaction Inventory (SSI)?

2. In which of the 11 performance gap scores can interaction between gender and class level be found?

3. In which of the 11 performance gap scores are there significant differences between the means among the freshmen, sophomores, juniors, or seniors?
4. In which of the 11 performance gap scores are there significant differences between the means of male and female students?

CHAPTER 2

REVIEW OF LITERATURE

Introduction

There has been much written about retention in higher education in the past twenty-five years. According to the National Center for Education Statistics (NCES, 1997), retention continues to be an issue of importance for colleges and universities as the number of students available to attend postsecondary schools continues to fluctuate (1997). A review of the literature yields a wealth of information on the topic. This literature review will focus on three main areas: first, an overview and review of literature related to the topic of retention, second, an overview of research related to enrollment management, and third, an overview of student satisfaction.

Overview of Retention

A review of the literature on the importance of the study of retention and the impact that those results have for institutions doing research shows that certain commonalties reoccur within the theories or models of retention. The common themes are academic integration and social integration. There are various theoretical models that provide a comprehensive framework on college departure decisions (Astin, 1984; Bean, 1982; Tinto, 1993).

For this review of literature, three of these models were examined, Tinto's Student Integration Model, Bean's Student Attrition Model and Astin's Theory of Involvement.

Tinto's Student Integration model has become accepted as one of the most useful models for explaining the causes of departure from college. Two factors that help predict student retention, social and academic integration, are the main factors discussed in the Tinto model (Boyle, 1989; Tinto, 1993). These two factors become a means for discussing and testing the models for college withdrawal (Stage, 1989). The factors, academic integration and social integration, are sometimes referred to as cognitive and affective conditions (Stodt, 1987).

Tinto's Student Integration Model is based on the work of Arnold Van Gennep (1960), a Dutch anthropologist, and Emile Durkheim (1951), a French sociologist. Van Gennep's work looked at a culture's "rites of passage." The culture's rituals were designed to move an individual from one developmental stage to the next. There were three stages to Van Gennep's rites of passage. The first stage that Van Gennep identified was rite of separation. In rite of separation there is a marked reduction or a complete cessation of interaction between the individual and members of the group in which he or she had previously interacted. Van Gennep's second stage was transitional rites, which is characterized by ambiguity. In this stage the individual is tested to see how he or she adjusts to a new environment, leaving behind familiar relations and recognized patterns. Van Gennep's third and final stage in "rites of passage" was incorporation. This stage is characterized by a series of rituals and ceremonies that symbolically express the new position in the new "culture."

The duration of these three stages differs relative to the individual and the situation. When the institution does not provide college students the opportunity to complete the three stages, they will most likely drop out of school (Tinto, 1993). Tinto's comparison was those institutions' function as "societal rites of passage." He stated that the more integrated students became in the transition stages the more likely they were to persist with their education (Tinto, 1993).

Another influence on the development of Tinto's model was Durkheim's (1951) research on suicide. Durkheim found that when a person shares values with a group, that person is less likely to commit suicide. He also found that when an individual has friends for support that the person is less likely to commit suicide. From Durkheim's research, Spady (1970) made the comparison of students withdrawing from college to people withdrawing from society (Bean, 1982).

Tinto's model examines the processes that motivate individuals to leave colleges and universities before graduating (Cabrera, Nora, & Castaneda, 1993). Within social and academic integration there is a range of formal and informal experiences of students. Some of these formal and informal experiences are determined by the institution, and some are determined by the student. Tinto (1993) maintained that these formal and informal experiences are both critical to long-term success and persistence in college.

Tinto (1993) reported that for a student to persist in his or her education there needs to be congruency between the student and the institution. The higher the student's goal to complete college the greater the probability of persisting in college (Cabrera, Nora, & Castaneda, 1993). The student's motivation and academic ability must be matched with the institution's academic and social characteristics in order to help shape two underlying commitments: commitment to an educational goal and commitment to remain with the institution (Hodgetts, 1982; Cabrera, Nora, & Castaneda, 1993). The institution must also be committed to the student's educational goals.

The second model to be reviewed that explains retention is Bean's Student Attrition Model. This model is similar to, yet different from, the Tinto model. Bean's model was developed from the results of studying turnover in work organizations (Starr, Betz, & Menne, 1972; Bean, 1980). Employee turnover is chiefly a result of the work environment. When employees are satisfied with the work environment they will most likely not quit (Bean, 1980).

Bean's model asserts that persisting in college is analogous to job turnover in work organizations, and that it is important to look at the student's behavioral intentions. Behavioral intentions are molded by a process in which beliefs shape attitudes and attitudes influence behavior (Fishbein & Ajzen, 1975). A process in which beliefs about educational goals shape attitude, and attitudes guide behavior directs these behavioral intentions. The student's beliefs are affected by the student's experience with the different components of an institution (Cabrera, Nora, & Castaneda, 1993). Stodt (1987) remarked that students must be convinced as consumers to buy more than a semester at a time, to buy a four-year contract. The student needs to recognize how his or her investment is paying off. The level of satisfaction is expected to increase the level of institutional commitment. If there is not enough institutional commitment, the student will drop out of school (Bean, 1980). Bean (1986) found that institutional commitment was the primary variable influencing dropout. Hossler (1994) found that goal commitment and intent to leave are the strongest predictors of dropping out.

The Student Attrition Model recognizes those external factors, such as family support and financial stability, can play a major role in affecting both attitudes and decisions while still attending college (Cabrera, Nora, & Castaneda, 1993). The Student Attrition Model also acknowledges that the student's beliefs, and thus the student's attitudes, are subject to factors external to the institution. The external factors have been studied and tested to measure the relevancy that they have on a student's persisting in college.

The final model used to study retention is Astin's Theory of Involvement (1977). The roots for this model come from a longitudinal study of more than 200,000 college dropouts. Astin identified several factors in the college environment that influenced students' decisions to stay or leave college.

Astin identified over 80 different student outcome measures (variables). His model focused on the effects of various types of involvement including where the student lived; honors programs; academic involvement; major; athletic participation; student-faculty; student-student; and involvement in student government. Astin (1984) found that the variable that contributed to persistence suggested involvement in the campus community whereas the variable that contributed to dropping out implied a lack of involvement.

Common themes that occur in Tinto's and Bean's models that are closely related to retention are academic integration or performance and social integration. Tinto's concept of integration is the more comprehensive of the two (Hossler, 1994). Retention research shows a high correlation between academic performance and persistence (Spady, 1970). Academic integration occurs through faculty contact such as teaching, academic advising, or institutional involvement such as providing social events. Most student-faculty contact occurs within academics. However, evidence shows that student-faculty contact outside the classroom is also important (Pascarella & Terenzini, 1991; Tinto, 1993). Contact with faculty comes about in formal and/or informal contacts (Stodt, 1987; Tinto, 1993). Formal contact occurs through teaching and academic advising. Institutions must support teaching and academic advising so that academic integration of the student occurs. Curricula and courses must provide materials and information relevant to the student's educational goals. One way colleges can help students become aware of what their educational goals are is by offering some type of course, such as a freshman seminar course, that will aid the student in gaining that knowledge (Upcraft & Gardiner, 1989).

Since most formal contacts supporting academic integration are ones that occur in the classroom, institutions must place a priority on the quality of student-faculty interactions (Pascarella & Terenzini, 1991; Tinto, 1993). Institutions should maintain quality by challenging their faculty to examine their current teaching methodology to see how the methodology fits the current needs of today's student (Stodt, 1987; Pascarella & Terenzini, 1991; Sines & Duckworth, 1994). Faculty must consider various teaching techniques and methods for delivery of information (Gardiner & Nazri-Robàti, 1983). Rowley, Lujan, and

Dolence (1997) stated, "Colleges and universities are no longer the gatekeepers—they no longer hold the only way of creating and disseminating information, let alone learning from it" (p. 23). An active mode of delivering material to students is considered appropriate. It is also important for faculty to teach students to become responsible for their learning. Students make judgments about their academic experience on the basis of factors such as quality of instruction, freedom to contact faculty for consultation, availability of faculty for consultation, and faculty involvement outside the classroom (Noel, 1994).

Another type of formal contact made between student and faculty that supports academic integration is academic advising of students by faculty members. Faculty advising has long been considered a part of the faculty member's job description. Academic advising is also considered an integral part of the higher education process (Crockett, 1978). Good academic advising by faculty has a strong link to student persistence (Crockett, 1978; Stodt, 1987). When a student feels good about the academic advising he or she receives, the student also feels good about the institution. Academic advising can stimulate intellectual growth and development of the student and can also enrich the educational curricula of the school. It has been shown that frequent and high quality contact by faculty with advisees results in student persistence (Crockett, 1978).

Informal interaction with faculty also plays an important role in retention. Informal contacts with faculty have a role in the total quality educational experience. Examples of informal interaction include casual conversation between classes and conversation at school events. These types of social contacts were consistently found to be linked positively to freshman year persistence (Terenzini & Pascarella, 1980; Astin, 1984; Tinto, 1993). Not only has informal contact been found important, frequency and quality of informal contact played a role in attrition decisions. Sines and Duckworth (1994) noted, "What determines a quality education is more than just what takes place in the classroom" (p. 3). There is also evidence that informal contact is somewhat more important for women students than men students (Terenzini & Pascarella, 1980).

With the attrition rate for first-year students at 29.9% (ACT, 1997) for private four-year institutions, the beginning of the freshman year is critical to retention (ACT, 1997). Colleges and universities need to strongly encourage contact by faculty and staff with students in the freshman year. Many colleges offer freshmen seminar courses as one method of making this investment. These courses help the student to integrate academically and socially into the institution. The more we concentrate resources on a freshman's beginning experience, the greater the likelihood that the freshman will persist with his or her education (Dunphy, 1987). When freshmen take orientation courses, the student experiences a greater sense of community, becomes more comfortable talking with his or her professors, and gains a greater understanding of where and how to get help (Gordon, 1989; Upcraft & Gardiner, 1989). Further, frequent absences from the freshman course serve as an early warning of likely attrition (Dunphy, 1987).

Research has shown that student participation in orientation courses results in increased retention rates, increased student knowledge, and increased participation in extracurricular activities (Perigo & Upcraft, 1989; Upcraft & Gardiner, 1989).

Variables in the Tinto and Bean model serve as a standard against which other research can be measured. Many research efforts currently are isolating one variable and measuring that variable against one of the models.

Pascarella and Terenzini (1991) looked at the variables of informal faculty and student contacts. When comparing their results to the Tinto model, we see a significant difference between persisters and leavers (Pascarella & Terenzini, 1991). This difference between persisters and leavers held true when students discussed intellectual or course-related subjects with faculty outside of the classroom (Pascarella & Terenzini, 1991).

In other studies done to test the validity of Tinto's model, Terenzini and Pascarella (1980) developed a multidimensional instrument. Their results indicated strong support for both the instrument and the model, especially validating the constructs of academic and social integration (Boyle, 1989). Getzlaf, Sedlacek, Kearney, and Blackwell (1984) also tested against Tinto's model, and in their findings found GPA to be a significant predictor of persistence (Boyle, 1989).

Retention strategies that work for some students may not work for other students. Additionally, strategies that work for some institutions may not work for other institutions. Patterns of results from studies of retention can lead institutions to various solutions. It is important, however, for the institution to question the student about academic integration and social integration concerns before the student leaves. Any intervention for retention should occur while the student is enrolled, not after he or she leaves.

Overview of Enrollment Management

While studying theories of retention is useful to understanding why students drop out of college, they do not explain attrition in its entirety. Enrollment Management has two aspects. The first aspect studies recruiting students; the second aspect is the study of retention. For purposes of this paper, I will look at only the retention aspect of enrollment management.

As part of the study of retention, it is important to examine why students remain in college. To do so we must consider the reasons associated with why students return to college year after year. These reasons involve consumer behavior principles. First, the problems related to retention as a part of enrollment management with special emphasis on consumer behavior will be addressed and second, student satisfaction will be addressed.

Enrollment practices became more formalized starting back in the early 1970s (Pike, 1991) when competition for students began to increase as student numbers available for college were predicted to drop. At the same time, there was also an increased emphasis on quality instruction and service to students. This trend came about in part as a result of students becoming more vocal in expressing their dissatisfaction with some aspects of campus policies such as student life and administrative policies. Student protests became more common on college campuses, and the demand for student services and quality education became more prevalent (Schmidt & Sedlacek, 1972).

As a result of demands for increased accountability and outcome measures, institutions needed methods for measuring these factors. Enrollment managers in higher education borrowed consumer principles from the business industry in order to aid in this task. While institutions can not totally move from a "provider" model to a "consumer" model, the institution must respond to consumer demand (Rowley, Lujan, & Dolence, 1997).

One industry theory that enrollment management borrowed is the expectancy theory (Cummings & Schwab, 1973). Expectancy theory explains motivation behind workers in industry, which can be compared to student motivation. Expectancy theory predicts that a worker will be a high performer when he or she sees that work effort will have some kind of an effect, whether from a "pat on the back" or a pay increase. In expectancy theory, job performance is also related to job satisfaction. When workers are satisfied with their jobs, they "perform" at a higher level. Expectancy theory can be compared to students' satisfaction with their education. The more satisfied students are with the educational experience, the more likely it is that students will continue with their education.

By the late 1980s, demographers told us that there would be a decline in the number of high school seniors going on to post-secondary schools (Porter, 1990). In some states in fact enrollment decrease at four-year colleges did not materialize, and in some states there has been a greater demand for higher education (Healy, 1997). Next came the prediction that there would be dramatic increases in student numbers. With the recent release from NCES (1997), the new forecast for post-secondary schools takes on yet a different look. Enrollment forecasting has become more complicated by several trends. These trends include the following: high school students are taking college classes while still in high school; there is a heavy demand for classes at community colleges by non-traditional students; and there have been changes in federal and state financial aid policies. Other trends that affect enrollment are growth in distance learning and a good economy which attracts prospective students to jobs instead of going to school (Healy, 1997). Students are making different choices about their post-secondary education from those anticipated in earlier projections. With so many factors influencing enrollment trends, it is nearly impossible to generalize national trends to individual states, or state trends to the nation as a whole (Western Interstate Commission for Higher Education, 1993). Somewhat easier to predict than enrollment are the benefits of a student's staying in college and the cost of attrition when a student decides to leave school.

It is much easier in time, money, and effort to retain students than to recruit them. If a student drops out after the first year, it means the loss of three years of tuition (Bean, 1990b). It would take four freshmen who quit after one year to equal the income of one student who stays for four years. Concern about the retention rate of students is not limited to freshmen. The cost of losing students can not and should not be measured only in dollars. Attrition of students is a problem for more than just the institution that loses the student.

Attrition of college students is also a problem for society. When a student chooses not to further his or her education, this decision creates a reduction of educated individuals for our society. The individual loses by dropping out of school is the same in that there is personal failure to achieve his or her educational objectives. The student who drops out of college is also at risk of receiving an income at 15% below that of contemporaries who stay in college (Bean, 1990b). Retaining students with positive attitudes toward the college or university means that the student will re-enroll. Upon graduation "alumni" will speak favorably about the institution which will aid in further recruiting new students (Bean, 1990a).

Society and the student lose out when the student drops out of college, and the college or university fails to collect tuition money. The institution surrenders more than just dollars. Faculty morale is affected by attrition (Bean, 1986) as is the morale of admissions counselors who work hard to recruit a new students. Admission counselors expend much time, money, and energy recruiting students, and at times their jobs are in jeopardy when they do not meet their quotas (Ferguson, 1990).

In addition to theories on student departure, are two concepts related to student retention: enrollment management, with the construct of consumer behavior and student satisfaction. These two concepts are an integral part of Tinto's, Astin's, and Bean's work.

The study of consumer behavior comes from marketing principles, including expectancy theory. Consumer behavior studies show how to get, and keep, customers. While some educators argue that marketing is incompatible with the educational mission and does not fit in higher education, institutions can use marketing knowledge to explain student satisfaction and attrition concerns. Rowley, Lujan, and Dolence (1997) wrote: "If a central purpose of higher education is to advance knowledge while helping to create a better society, then colleges and universities must respond to consumer demand in ways not yet perfected by present practice" (p. 54).

Consumer expectancy can be explained through Vroom's Theory of Expectancy (1960). Vroom made the assertion that consumers form expectations about product performance before they buy. In purchasing an education, which is considered to be an "intangible good," (Levitt, 1981) students "purchase" their college education based on what they see and hear about the institution. From the buyer's (student's) point of view, the product (education) is a promise, and the customer (student), although sold, can just as quickly be unsold if expectations are not met (Levitt, 1981).

Depending on the level of satisfaction with the "purchase," called post-purchase action, this satisfaction can have many positive benefits for the institution as well as some harmful effects. When the consumer is satisfied he or she will "repurchase" the service (take another semester of classes), he or she will recommend the school to other customers (children and friends), and they will contribute to alumni associations (Stodt, 1987; Pate, 1993). If on the other hand, the consumer is dissatisfied with the service, he or she may speak poorly about the product (Pate, 1993).

Overview of Student Satisfaction

While models from the business industry can explain expectancy theories, they do not entirely explain student satisfaction, the other principle related to retention. We know from the literature on student retention that recruiting students is expensive (Rowley, Herman, & Dolence, 1997). It was not until the 1980s when studies showed that increasing student satisfaction had a positive effect on retention. Astin (1993) found in his studies on retention that there "appears to be a direct association between student satisfaction and retention (p. 278).

Gardiner and Nazari-Robati (1983) and Earwood-Smith and Colbert (1989) suggested that researchers look at attrition in a different light. Rather than studying why students drop out of college, research must focus on the persister and retention rates. The quality of student life must be a campus-wide concern. Sanders and Burton (1996) said researchers should be asking about what kind of experience the institution provides to its students, and what the level of satisfaction is with their experience. Of particular importance, faculty need to believe that retention is part of their job (Toy, 1985). In a highly competitive market, institutions must continually assess how satisfied students are if they hope to retain them.

Sanders and Burton (1996) stated, "Although strongly connected to retention, student satisfaction is a more powerful measure that can continue to be improved even in institutions with high retention and graduation rates" (p. 556).

In the 1970s, when the number of high school graduates was projected to decrease dramatically, along with the rising costs for higher education, the competition for students began to increase at institutions of higher education. At this same time demands for greater accountability were put on institutions by legislators, media, parents and the general public (Hartman & Schmidt, 1995). In addition, to the demands for quality instruction and service to students, there were public policy shifts, and continued reduction in state and federal aid to institutions (Hossler, 1994).

Some educators argued that marketing is incompatible with the educational mission and does not fit in higher education institutions (Pate, 1993). However, Sines and Duckworth (1994) stated, "It's time for educational institutions to face two facts: they are in a competitive battle for students, and students are customers" (p. 2). With the continued rising costs of education and unpredictable pools from which to draw students, it is difficult to consider students as less than consumers. Students should be viewed as consumers of educational services and not products (Hartman & Schmidt, 1995). Hossler (1994) said, "Suppliers of educational services need to know what criteria will influence students' choices, what services will help students achieve their goals, and what factors determine overall student satisfaction or dissatisfaction" (p. 198).

Businesses are suppliers of two types of products, those that are tangible and those that are not (Levitt, 1981). Education is an example of an intangible product (Levitt, 1981; Sines & Duckworth, 1994). Prospective students are consumers looking to "purchase" the intangible product—an education. When prospective customers, students in this case, can not experience the product they are purchasing in advance, they are essentially being asked to buy promises, promises of satisfaction (Levitt, 1981). Students are "purchasing" their college education based on what they see and hear to make a judgement about the realities. From the buyer's point of view, the product is a promise, and although the customers are sold, they can just as easily be unsold if their expectations are not met. Further, Rowley, Lujan, and Dolence (1997) said, "But if the student finds that the institutional environment is coarse, unhelpful, and unforgiving that investment is wasted as the student looks elsewhere" (p. 225).

When it comes to retaining customers, intangible products, like education, pose very special problems. Unique to intangible products is the fact that the customer is seldom aware of being served well. If everything is going well, the customer is oblivious to what he or she is getting (Levitt, 1981). It is only when something does not go well that the customer (student) becomes aware of what he or she is not getting. It is on these satisfactions that he or she dwells. For this reason it is important to remind students regularly of the presence and value of their investment (Stodt, 1987).

Students must be convinced that attending institutions of higher learning will help them attain their educational goals. Retaining students is related to another concept called "post-purchase marketing" (Levitt, 1981). Consumers' post-purchase evaluation is a crucial issue for two reasons. First, a college education is costly, maybe the most costly purchase an individual will make. The second reason post-purchase evaluation is important is from the benefits an institution will gain when it has "satisfied customers" graduate. These graduates may not only contribute money to the institution, but the institution will also receive free word-of-mouth advertising, and they will serve as resources for jobs for new graduates (Chadwick & Ward, 1987). Students choose their schools on one set of factors, which are intangible, and later evaluate their experience on another set of factors, which are tangible (Chadwick & Ward, 1987). Astin (1993) found that the degree of satisfaction with the college experience is less dependent on the entering characteristics of the student than on the experience he or she has after arriving on campus.

Students are becoming more and more expressive of their dissatisfactions with certain aspects of their educational experience (Hartman & Schmidt, 1995). Bean and Bradley (1986) suggested, “A substantive area of investigation (student satisfaction) has received scant attention over the last decade” (p. 393). In a study of colleges and universities, Pike (1991) reported that virtually all of the administrators surveyed identified satisfaction as a key element in institutional effectiveness. Pike (1991) noted that with the continued interest in assessment of higher education programs would also come increased assessment of student satisfaction. Noel and Levitz (1996) stated that student assessment would continue to be used to pinpoint and prioritize action steps to improve institutional effectiveness. Astin, Korn, and Green (1987) found as a result of studying the results from Cooperative Institutional Research Programs (CIRP) studies that one in four students reports overall dissatisfaction with his or her school. Astin, Korn, and Green (1987), along with Hartman and Schmidt (1995), found that upperclassmen would more often than not offer very different sentiments about their college experience than the lower-division students.

Spady (1970) suggested that academic satisfaction was critical in explaining college persistence. Astin (1993) supported Spady and wrote, “Virtually all measures of satisfaction with the undergraduate experience are significantly related to the number of undergraduate years completed”

(p. 278) and "one promising way to reduce an institution's dropout rate is to focus more attention on student satisfaction as an 'intermediate outcome'" (p. 278). An important aspect of focusing on student satisfaction instead of attrition is that the difference between sub-groups such as gender, ethnicity, or parents' educational background can be studied (Sanders & Burton, 1996).

CHAPTER 3

METHODOLOGY

Introduction

The literature review in Chapter 2 has provided the foundation from which this research was conducted. Chapter 3 described the procedures and methods that the researcher used to collect and analyze the data. Included in this chapter are the following sections: theoretical background; instrument used; reliability and validity; hypotheses; population description and sampling procedure; method of data collection; analysis of data; and limitations and delimitations.

Theoretical Background

This study was based upon several theories of student retention. The theories include the following: Tinto's Theory of Departure, Bean's Student Attrition Model, and Astin's Theory of Involvement. Also discussed were the concepts of enrollment management, which includes consumer behavior and student satisfaction.

Tinto (1975, 1987, & 1993) formulated a theory, Tinto's Theory of Departure, which explains the process that motivates individuals to leave college before graduating. Tinto's theory hypothesized that the match between an individual's motivation and academic ability and the institution's academic and social characteristics determines student persistence in college.

Astin's Theory of Involvement has at its base information from a longitudinal study of college dropouts. His study identified factors in the college environment that influenced students' decisions to stay or leave the college.

Bean's (1982) Student Attrition Model builds upon process models of organizational turnover. Bean hypothesized that student attrition is analogous to employee turnover in employment situations and stressed the importance of behavioral intentions as predictors of persistence behavior. As a method of studying the various process models and other theories related to student behaviors, enrollment management models were instituted and the people in charge of enrollment, enrollment managers, were hired.

Enrollment managers have as one of their tasks to become knowledgeable about both recruiting and retaining students. Today's students are in a position to be more selective about where they will go to college and whether or not they will stay at the institution that they choose.

As a means of staying abreast of enrollment trends, enrollment managers study marketing trends and issues. Since the study of consumer behavior is a part of the study of marketing trends, it is critical that enrollment managers pay particular attention to the theories encompassing college students' level of satisfaction with their educational experience. Included in these consumer behavior theories is the theory of expectancy. This theory purports to explain why some workers in industry perform at a higher level than others. Expectancy theory can be used to make the comparison to student satisfaction with his or her educational experience. The more satisfied a student is with his or her educational process the more likely he or she will return semester after semester.

Related to customer behavior is student satisfaction. The study of student satisfaction parallels research conducted on employee satisfaction (Bean, 1980; Bean & Bradley, 1986). Sanders and Burton wrote: "Although strongly connected to retention, student satisfaction is a more powerful measure that can continue to be improved even in institutions with high retention and graduation rates" (p. 556). The difference between expectation and what actually takes place (perception) leads to satisfaction. Looking at student expectations and student satisfaction will enable institutions to make decisions about how to use their resources to meet the expectation of the student. When students are satisfied with the services they are given, it is more likely that they will continue with their education (Astin, 1993).

Instrument Used

Using the Student Satisfaction Inventory (SSI), students from Carroll College were surveyed regarding their level of expectation and level of satisfaction on 11 comprehensive scales of institutional characteristics. The SSI was developed by Drs. Stephanie Juillerat and Laurie Schreiner. The SSI is used by four-year public and private institutions and two-year vocational schools across the country. The SSI is used to measure level of expectation and level of satisfaction of students on comprehensive scales of institutional characteristics.

The difference between level of expectation and level of satisfaction, which is called the performance gap score, was computed.

The instrument chosen to gather data was the Student Satisfaction Inventory (hereafter referred to as "SSI") (Schreiner & Juillerat, 1994). The instrument consists of 73 individual questions that make up the 12 comprehensive scales of institutional characteristics (see appendices A and B). Of the 12 comprehensive scales, 11 scales were used in the study. The following provides a description of each of the comprehensive scales:

1. Academic Advising Effectiveness assesses the comprehensiveness of the academic advising program. Academic advisors are evaluated on the basis of their knowledge, competence and personal concern for student success, as well as on their approachability.

2. Campus Climate assesses the extent to which the institution provides experiences which promote a sense of campus pride and feelings of belonging. This scale also assesses the effectiveness of the institution's channels of communication for students.
3. Campus Life assesses the effectiveness of student life programs offered by the institution, covering issues ranging from athletics to residence life. This scale also assesses campus policies and procedures to determine students' perceptions of their rights and responsibilities.
4. Campus Support Services assesses the quality of the support programs and services which students utilize in order to make their educational experiences more meaningful and productive.
5. Concern for the Individual assesses the institution's commitment to treating each student as an individual.
6. Instructional Effectiveness assesses the students' academic experience, the curriculum, and campus's overriding commitment to academic excellence.
7. Recruitment and Financial Aid Effectiveness assesses the institution's ability to enroll students in an effective manner.

8. Registration Effectiveness assesses issues associated with registration and billing. This scale also measures the institution's commitment to making this process as smooth and effective as possible.

9. Responsiveness to Diverse Populations assesses the institution's commitment to specific groups of students enrolled at the institution, e.g., under-represented populations, students with disabilities, commuters, part-time students, and older returning students.

10. Safety and Security assesses the institution's responsiveness to students' personal safety and security on the campus. This scale measures the effectiveness of both security personnel and campus facilities.

11. Service Excellence assesses the perceived attitude of the staff toward students, especially front-line staff. This scale pinpoints the areas of the campus where quality service and personal concern for students are rated most favorably and least favorably.

12. Student Centeredness assesses the campus's efforts to convey to students that they are important to the institution. This scale measures the extent to which students feel welcome and valued. (Adapted from Noel-Levitz, 1996 (p. 1-4)

The scale, Responsiveness to Diverse Populations, was the only scale that measured satisfaction only and not importance. According to Juillerat (1995):

> The SSI does not include an importance score for the items on the Responsiveness to Diverse Populations Scale because of the sensitive nature of the questions and because of the statistical implications of asking a majority population about the importance of predominantly minority-related issues. Therefore, the authors decided to consider all six of these questions to be important to students (or at least the institution) and avoid any complications with trying to analyze responses based on majority vs. minority populations. (p. 83)

Each of the 73 items is expressed as a statement of expectation or satisfaction. Students were asked, first, to rate how important the expectation was to their overall satisfaction with college, using a seven-point Likert rating scale ranging from 1-7, with one indicating "not at all important" to seven indicating "very important." Next, students were requested to rate their level of satisfaction that the school has met the expectation using a seven-point Likert scale ranging from one indicating "not at all satisfied" to seven indicating "very satisfied." The difference between the two scores is then computed and is called the performance gap score. The SSI is a self explanatory and easily administered questionnaire, which takes approximately 20 minutes to complete. The SSI was used to measure the overall satisfaction and priorities of students.

Surveys were sent to USA Noel-Levitz for initial scoring. A data disk with the raw data was purchased from Noel-Levitz and was used to provide the data for the study.

<u>Reliability and Validity</u>

There are 12 comprehensive scales on the SSI, each with established reliability. Cronbach's coefficient alpha, which was used to determine how the internal consistency of the instrument was correlated for each item, was .97 for the set of importance scores and .98 for the set of satisfaction scores. These scores support the internal consistency of the instrument. Juillerat stated "that each item was important to the over-all instrument and that no item should be deleted" (telephone interview, October 12, 1997). Further she said, "The instrument would not be improved by deleting any of the questions."

The SSI also demonstrates good score reliability over time. The reliability coefficient was found to be .85 for importance scores and .84 for satisfaction scores for the 3-week retest that was conducted. Juillerat (1995) also found there would be no improvement in the instrument, based on alpha, if any of the items were removed.

There is also evidence to support the validity of the Student Satisfaction Inventory. Convergent validity was assessed by correlating satisfaction scores from the SSI with satisfaction scores from the College Student Satisfaction Questionnaire (CSSQ), another statistically reliable satisfaction instrument. The Pearson correlation between these two instruments ($r=.71$; $p<.00001$) was moderately high, enough to indicate adequate agreement that the SSI's satisfaction scores measure the same satisfaction construct as the CSSQ's scores, and yet the correlation is low enough to indicate that there are distinct differences between the two instruments.

Hypotheses

The following hypotheses were tested in this study at an alpha of .05.

1. There is no significant relationship between the dependent variable (decision to return to college or not to return to college) and the independent variables (the performance gap scores) of the students surveyed.
2. Class level and gender of students in this study do not interact on the 11 performance gap scores of the comprehensive scales of institutional characteristics.
3. There are no significant differences in performance gap scores among freshmen, sophomore, junior, and senior students in the survey population on the 11 comprehensive scales of institutional characteristics.
4. There are no significant differences in performance gap scores between male and female students in the survey group

on the 11 comprehensive scales of institutional characteristics.

Population Description and Sampling Procedure

The population from which the sample was drawn consisted of students enrolled at Carroll College, a private four-year liberal arts college located in the west central part of Montana. Carroll College had a student population of 1,263 students when the data were collected for this study. Data for this study were collected in the spring semester, 1997.

Based on class level, the sample used in the study consisted of a proportional stratified sample drawn from the freshman, sophomore, junior, and senior classes. At the time of the survey the population consisted of 35% freshmen, 22% sophomores, 18% juniors, and 25% seniors. Noel-Levitz, the company from which the SSI was purchased, recommended surveying half of the student population. Carroll College surveyed 600 students.

From the 600 surveys distributed, 210 (35%) freshmen, 132 (22%) sophomores, 108 (18%) juniors, and 150 (25%) seniors, 409 (68%) returned. From the 409 returned questionnaires, 386 had responses that met the criteria to investigate the hypotheses.

The results from the SSI were divided into two groups. The first group consisted of all of the returned useable surveys.

The second group consisted of those students who supplied a valid social security number. The social security number was the only means by which student records could be searched to find out the status of the student.

Method of Data Collection

The survey was administered through the Office of Admissions and Retention. Classroom distribution by faculty based on class level was selected as the means by which students were surveyed. The Office of the Registrar provided a computer-generated course listing with student classifications of freshman, sophomore, junior, and senior students. Classes surveyed were selected based on classes that had discrete populations of freshmen, sophomore, junior, and senior students.

Analysis of Data

Three statistical methods were used to analyze the data from this study, Multiple Regression, Two-Factor Analysis of Variance, and Newman-Keuls post hoc comparison. The first statistical method, multiple regression, is a method used for analyzing the separate and collective contributions of two or more independent variables to explain the variability in the dependent variable. As Kerlinger and Pedhazur (1973) wrote: “Multiple regression analysis is nicely suited to studying the influence of several independent variables, including experimental (manipulated) variables, on a dependent variable" (p. 4).

Multiple regression has a number of strengths to be considered for use. Multiple regression's biggest strength is its close relation to the purpose of scientific investigations, and that is to explain natural phenomena (Kerlinger & Pedhazur, 1973). A second strength of multiple regression is that this statistical method can handle any number and type of independent variables. Yet another strength of multiple regression is that it is appropriate for use when there are multiple independent variables and one dependent variable, or one dependent variable at a time (Kerlinger & Pedhazur, 1973). The same authors noted a final strength of multiple regression "is the yield of statistics" (p. 445) found for use in interpreting the data.

Multiple regression analysis was used to test Hypothesis 1. This analysis was used to determine if there was a significant relationship between the decision to return or not to return (dependent variable) to Carroll College and the 11 performance gap scores (independent variables).

To analyze Hypotheses 2 through 4 the second statistical method, two-factor analysis of variance, was used. Analysis of variance is used to investigate the differences between mean scores of the variables being analyzed. In this study, a two-by-four factorial design with tests for interaction was used. The two-component factors were gender, and the four-component factors were class level.

Two-factor analysis of variance is a precise and informative statistical method (Kerlinger & Pedhazur, 1973). The researcher examined whether gender and class level interacted on the 11 performance gap scores from the 11 comprehensive scales of expectation and the 11 comprehensive scales of satisfaction. Two-factor analysis of variance is often used in the field of education. Popham and Sirotnik (1992) wrote, "Because education is one of the most complex behavioral fields, investigations conducted must employ data analysis techniques that take into consideration not only more than one variable but also extremely subtle interactions among variables" (p. 180).

For each of the 11 performance gap scores, analysis of Hypotheses 2 through 4 were tested at the same time. First, the possibility of interaction was examined. When interaction was found, it was interpreted. If no interaction was found, the researcher went on to test for main effects. Second, differences between the means among class levels were studied. Finally, differences between the means of males and females were examined. If one of the means was found to be significantly different, the null hypothesis was rejected, and Newman-Keuls post-hoc comparison was used to identify which means were different.

Newman-Keuls was chosen for the post-hoc comparison as it provided the best balance between making a Type I or a Type II error. As Glass and Hopkins (1996) stated, "The Newman-Keuls [significance] levels provide a high degree of protection for the entire [omnibus] null hypothesis, and this is the multiple range this author favors. Moreover, it does not suffer from the conservatism of the Tukey test caused by utilizing just a single critical value" (p. 452).

There are many attitudes (Popham & Sirotnik, 1992) on what significance level should be used for testing the null hypothesis. Popham and Sirotnik (1992) wrote, "It has been conventional in behavioral science research to use the 0.05 level of significance" (p. 50). Further, Skipper, Guenther and Nass (1970) wrote: "Casual examination of the literature discloses that the common, arbitrary, and virtually sacred levels of .05, .01, and .001 are almost universally selected regardless of the nature and type of problem. Of these three, .05 is perhaps the most sacred" (p.155). By setting alpha at 0.05 the researcher wanted to balance against making either a Type I error or Type II error. A Type I error would occur if the null hypothesis was rejected when in fact there really was a difference between students who did not return to Carroll and the students who did return to Carroll College based on their performance gap scores on the 11 institutional characteristics, when in fact there was no difference. Problems encountered by rejecting the null hypothesis may include changes to institutional policies based on reasons why students left, which