STUDENT PERCEPTIONS OF UNIVERSITY FACULTY ON THE LENGTH OF ENROLLMENT OF UNIVERSITY STUDENTS

by

George Edward Adams, Jr.

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APPROVED:

D. G. Creamer, Chairman

J. A. Muffo

S. M. Janosik

D. E. Hutchins

G. W. Bird

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Committee Chairman: Don G. Creamer
College Student Affairs

(Abstract)

This study examined differences between Extenders (students who extended their continuous full-time enrollment beyond eight semesters) and Completers (students who completed their degree within eight semesters of continuous full-time enrollment). Student perceptions of the influences of faculty on the enrollment pattern of students were also investigated.

Subjects included 81 Extenders and 211 Completers enrolled in a large research university in the southeastern United States. Demographic independent variables included student gender, ethnicity, verbal and math Scholastic Achievement scores, and college affiliation. Measures of student environmental press, characteristics of faculty, student-faculty interaction, and faculty concern for teaching and student development were independent perceptual variables. Other independent variables related to development of a major, average weekly out-of-class faculty
contact and career orientation of students. The dependent variable was pattern of enrollment (Extender/Completer).

A higher proportion of Extenders were found to be male, and affiliated with the College of Engineering. Extenders' grade point average was lower than the average for Completers. More Extenders agreed that university-wide students are under pressure to get high grades. Extenders reported major faculty engaging in stimulating discussions and major and non-major faculty emphasizing variety and new approaches in student work less frequently than Completers. Less positive influence by major faculty on career aspirations was indicated among Extenders. Compared to Completers, Extenders disclosed that the development of a close personal relationship with at least one major or non-major faculty member occurred less often. Extenders also perceive most faculty as being less genuinely interested in teaching, than did Completers.

A discriminant analysis demonstrated that student perceptions of faculty influences were not significant discriminators between Extenders and Completers. The significant discriminating variables included grade point average, the perception that university-wide students are under pressure for high grades, and affiliation with the College of Arts and Sciences and the College of Engineering. The discriminant function explained 30.9% of the variance between Extenders and Completers.
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Chapter One

The Chronicle of Higher Education reported that new bills in Congress would require colleges to publish the graduation rates of athletes and all other students (Lederman, 1988, June 22). It was clear that college officials were very concerned about these bills, arguing that the work involved in collecting the data would be excessive and that the formula to determine the graduation rate was unclear. The former argument was refuted in a September, 1989, report by the General Accounting Office, which found that most schools already collect the required information within an average of twenty-five staff days (Gainer, 1989, September 11).

The introduction of these bills was a response to the need to better inform prospective college athletes about the quality of education they would likely receive. A specific concern was expressed about the graduation rates of students who participate in varsity sports. A consumer type legislative effort, dubbed the "Student-Athlete Right-to-Know Act," emanated from a concern that many college athletes do not graduate from college. The intent was to force colleges and universities to be accountable for the job they perform with student-athletes and other students.
Evidence exists that a large number of students do not graduate in the traditional four-year pattern (Porter, 1990). Information regarding the collegiate experience of students who take additional time to graduate has been very difficult to locate, particularly concerning students enrolled continuously full-time beyond the traditional eight semester degree completion period.

A popular sports magazine, *Sports Illustrated* (Staff, 1989, p.18) published an article about the Right-To Know-Act. The article reported that an examination of graduation rates among athletes who enrolled in the fall semester of 1982 at Division I basketball schools and Division I-A football schools were surprisingly less than twenty percent. The information was collected by the General Accounting Office in the process of providing information for bills before Congress. Officials of the National Collegiate Athletic Association (NCAA) were reported quick to criticize the data given to Congress by the General Accounting Office. The NCAA officials suggested that athletes who may have transferred from their initial schools were not taken into account in the computation of the rates.

In an effort to stop federal legislation, the NCAA voted to require Division I and II schools to disclose their graduation rates for student-athletes (Staff, 1990, January 15). The implication of this action by the NCAA was
interpreted as an effort on the part of college officials to
give in on the disclosure of graduation rates of student-
athletes, but avoid the publication of the graduation rates
for all students. Senate bill 580, the Student-Athlete
Right-to-Know Act, was reported as being passed in February
1990 (Staff, 1990, February 12). It was later reported that
H.R. 1454, the House bill that mirrors Senate bill 580,
would be considered shortly by the House Education and Labor
Committee (Staff, May, 1990) and was later approved (Staff,
1990, June 4).

Graduation rates for all students also received wide
publication beginning with a report concerning the
Department of Education study of 1982 college-bound high
school graduates that were published in the January 9, 1989,
issue of the U.S. News and World Report (Study finds detours
on the way, 1989). The article informed readers that not
all students enter college in the traditional pattern,
direct from high school. The most shocking news related to
the fact that, according to the Department of Education,
only twenty-two percent went through college in four years.
A year later, The Chronicle of Higher Education reported
about a study which found that only fifteen percent of
students attending four-year college programs graduate in
four years (Wilson, 1990). The pattern of college
enrollment clearly was not the traditional four year course of study for a bachelors' degree, that has been widely assumed by the general public.

A recent article which appeared in *The Chronicle of Higher Education* (Lederman, 1991, March 27), reported that a new federal law will require institutions of higher education to publish their graduation rates. It was pointed out that many officials at institutions of higher learning are indeed worried about how the public will interpret these rates. The results of a survey were presented in the same issue that show only 47.9% of all students graduated within a five-year period. Notable was the report that the graduation rates for athletes were higher than those of the general student body, with a rate of 56.1% within a five year period. Also, evidence that strongly indicated that some institutions graduate students at higher rates than others was presented. Officials of colleges and universities argue that graduation rates are not appropriate measures, citing the number of students who transfer, attend part-time, and who stop-out during their educational experience.

graduation rates of student-athletes (Editor, 1991, April 1). The editorial suggests that the difference between the graduation rates of student-athletes and the general student body is not surprising news, given the scholarships, tutors, special dormitories, and coaches who prod athletes to remain eligible to play sports. The editorial proposes that the Chronicle survey serve to guide parents and student-athletes as they shop for colleges.

College students now take a longer period of time to complete a degree program and do so in a variety of pathways. Information which acknowledges that the dominant pattern of college attendance is not the traditional four-year process for a bachelor's degree also will influence college selection behaviors of parents and students. Accumulated evidence strongly points to the conclusion that the public will use graduation rates in their selection process of a college or university.

One study (Porter, 1990) stands out as perhaps the only study presenting details of the student persistence experience in four-year colleges and universities by semester. Porter's study allows for an analysis of those students who entered college directly from high school as a separate group. The study by Porter was based upon the third follow-up in 1986 of the High School and Beyond data.
and is separated into the following categories: (a) completers, students who earn a four-year degree; (b) persisters, students who have maintained continuous enrollment; (c) stopouts, students who enrolled at a four-year college and who left for at least one semester but who were enrolled at the time of the third follow-up; and (d) dropouts, students who enrolled, left, and did not return by the time of the third follow-up.

Analyzing the results of the data, Porter (1990) stated, "Should anyone still doubt that the average time to complete a bachelor's degree today is more likely to be five, not four years, these data clearly indicate that since the middle of this decade five years has been the more common time frame" (p. 14). The data show that, at the beginning of the ninth semester, 15.5% of students attending a four-year college have completed a degree program, 46.2% have dropped out, 12.6% have stopped out, and 25.7% are still persisters.

At the end of the fifth year, (the beginning of the eleventh semester), the reported completion rate for all students who attend a four-year college was 29.3%, a 9.4% increase over the completion rate at the end of the fourth year. The fifth year reported persistence rate was 11.2%, a drop of 9.3%, almost equal to the reported gain in the completion rate.
The end of the twelfth semester reveals that 40.7% of students have completed a four-year college degree program; a 25.2% increase over the four-year rate and a 11.4% increase over the five year rate. The reported persistence rate at the end of the twelfth semester indicates that 4.5% are still persisters; a decline of 21.2% compared to the four year rate and close to the completion rate increase during the fifth year. These data are evidence that a large number of four-year college students take five years to complete a degree program. However, little data exist that enable a determination of the number of student persisters who are enrolled full-time.

Background

Educational attainment has long been an interest of researchers in higher education. One major branch of this research has taken form in the study of student persistence toward the attainment of a bachelor's degree. The study of student persistence has emerged from a focus upon students who leave college to a more inclusive study of those who stay. Examination of research studies reveal how perspectives related to persistence evolved, as Porter (1990) illustrated, by the choice of terms used to describe the phenomenon such as mortality, survival, autopsy, and
attrition. More recently, the terms frequently in use about persistence include words such as stopout, dropout, completers, and persisters.

Changing patterns of enrollment, attendance, and diversity of the student body served as the context for the study of persistence. Increased numbers of students, especially older students and women, attend postsecondary institutions of education. The number of minorities found on the American college campus also has increased (Astin, Green, & Korn, 1987; Barker, Ogle, & Rodgers, 1990). Increasing numbers of students enter the system of higher education other than through the traditional pathway, directly from high school (Porter, 1990). This growth has occurred in the face of declining population of the traditional college-going, eighteen to twenty-one year old pool of students.

Concern for enrollments, and corresponding revenues, positions, and resources derived from them, have prompted institutions of higher learning to find successful methods of increasing the pool of students. As the sources cited indicate, higher education has been relatively successful in that effort. More important are the efforts that colleges and universities have directed to retaining the students they have recruited and admitted to a course of study. Recent indications are that institutions of higher education
have been much less successful in retention efforts (Porter, 1990) than in efforts toward increasing and diversifying the potential college student population.

Retention became a major aspect of the study of student persistence in college, with numerous studies and reports (Astin, 1975; Beal & Pascarella, 1982; Noel, Levitz, Saluri, & Associates, 1985; Lenning, Beal, & Sauer, 1980). The concern was directed towards keeping students enrolled and successfully proceeding toward graduation. Many institutions developed specific programs directed at enhancing continued student enrollment. In fact, the costs associated with recruiting a replacement compared to retaining a student are reported to be higher, both in terms of dollars and the social and academic climate of the campus (Beal & Noel, 1980; Garland, 1985; Husband, 1976).

Institutional quality emerged as a focus of retention research. Specifically, many institutions implemented programs related to an outcomes assessment of the college student experience (Adelman, undated; Astin, 1990; Jacobi, Astin, & Ayala, 1987). Two major works (Astin, 1985; Study Group, 1984) no doubt influenced this focus with convincing arguments. These arguments state that when an institution of higher learning presents convincing evidence of the value and impact of enrollment, and commits itself fully toward
the enhancement of student development in all of its actions, retention will be enhanced.

Theories and models of student persistence were developed by several researchers which sought to explain the experiences of college students about withdrawal/persistence decisions (Aitken, 1982; Bean, 1980; Braxton & Brier, 1989; Ethington, 1990; Spady, 1971; Tinto, 1975, 1987). The use of these models not only aid in developing a more complete understanding of student persistence, but also provide important and useful information regarding the experience of students enrolled in institutions of higher education. The student/institutional fit concept serves as the basis of these models and implies that the more congruent a student is with the institutional environment, including the academic and social systems, the more integrated, involved, and satisfied the student becomes, the more likely persistence is enhanced.

Among the variables associated with the study of college student persistence upon which a college or university has some measure of control, is student-faculty interaction, one which appears to have a significant impact on student persistence. Pascarella (1980), in a review of the literature on student-faculty interaction, reported that even when controlling for pre-college background factors, including ability, significant positive effects exist
between the extent and quality of student-faculty informal contact and students' academic achievement, aspirations, attitudes toward college, intellectual and personal development, and persistence. Others also have reported the importance of student-faculty contact in relation to persistence of college students (Astin, 1977; Endo & Harpel, 1982; Pascarella & Terenzini, 1979; Wilson, Gaff, Dienst, Wood, & Bavry, 1975).

Definition of Terms

For the purpose of this study the following definitions will apply.

1. Ability - A measure of student potential derived from the scores of the math and verbal sections of the Scholastic Achievement Test (SAT).

2. Major Environmental Press - The measure of student perceptions of levels of academic competition, impersonalism, and inaccessible faculty within the major (Astin & Panos, 1969; Pascarella, 1980).

3. Pattern of Developing a Major - The reference to the student pattern of making a decision regarding a major.

4. Characteristics of Major Faculty - The measure of student perceptions of the social climate between students and major faculty (Hearn, 1987).
5. **Characteristics of Non-Major Faculty** - The measure of student perceptions of the social climate between students and faculty not in the same major (Hearn, 1987).

6. **Career Orientation** - Student or graduate reports about career plans or current situation after completing a degree.

7. **Completers** - Students who completed degree requirements within eight semesters of continuous full-time enrollment and whose first-time freshman enrollment occurred during the 1987 fall semester.

8. **Current Student** - Students enrolled during the 1991 fall semester and whose first-time freshman enrollment occurred during the 1987 fall semester.

9. **Full-Time Enrollment** - Enrollment for twelve or more credit hours each semester.

10. **Extenders** - Students continuously enrolled full-time beyond eight semesters and whose first-time freshman enrollment occurred during the 1987 fall semester.

11. **Faculty Concern for Teaching** - The student perception of faculty concern for the student and for quality teaching (Pascarella, 1980).
12. **University-wide Environmental Press** - The measure of student perceptions of levels of academic competition, impersonalism, and inaccessible faculty university-wide (Astin & Panos, 1969; Pascarella, 1980).

13. **Recent Graduates** - Individuals who earned a degree during the 1991 spring semester and whose first-time freshman enrollment occurred during the 1987 fall semester.

14. **Student Achievement** - The cumulative grade point average (GPA).

15. **Student-faculty interactions** - The measure of the quality and impact of a student's informal, nonclassroom interaction with faculty (Pascarella, 1980).

**Statement of the Problem**

The pattern of taking extended time to complete a degree has become an increasingly common occurrence. Little is known about the collegiate experience of college students who are continuously enrolled full-time for more than the traditional eight semester four-year degree completion period. Information related to how these students engage in the academic and social systems of a college or university...
is surprisingly absent from the literature. Virtually no studies exist to date concerning these extended full-time persisters. Institutions of higher learning, therefore, have very limited data available in responding to public and political demands for detailing the quality of the educational experience this population of students receives.

Purpose of the Study

This study examined the differences between students who extended their continuous full-time enrollment beyond eight semesters (Extenders) and students who completed an undergraduate degree within eight full-time continuous semesters (Completers). The purpose was to investigate the student perceptions of the influences of university faculty on the enrollment pattern between Extenders and Completers.

Research Question

The following research question guided this study.

1. What is the influence of student perceptions of university faculty on students who are Completers and on students who are Extenders with respect to differences

   a. in student gender?
b. in student ethnicity?
c. in college affiliation?
d. in initial student ability?
e. in the pattern of developing a major?
f. in student perceptions of university-wide and major environmental press?
g. in student perceptions of major and non-major faculty?
h. related to student goals and intentions with respect to career orientation?
i. in student academic achievement?

Significance of the Study

The importance of this study will be in the development of knowledge with respect to one important aspect of the collegiate experience of students who extend their enrollment beyond eight semesters while being continuously enrolled full-time. Indications are that the number of students extending the enrollment beyond the traditional four-year time period for degree completion has been growing. An understanding concerning the potential unique experience of this population of students becomes essential as the general public, legislators, parents, and potential
students raise questions as to why so many college students take five years, rather than four, to complete a degree.

There are strong indications that the influence of faculty upon students is rather significant. This is one aspect of the campus over which university officials can exert some measure of control. It is important, to determine and compare the influence and impact of faculty as perceived by students who are Extenders and Completers.

Limitations

Several limitations of this study exist. These include

1. Only full-time continuously enrolled university students are considered in the study.

2. This study investigated only the student perceptions of the influence of university faculty related to the enrollment pattern of Extenders and Completers.

3. This study was *ex post facto* in nature and thus did not examine student perceptions of faculty periodically through-out their collegiate experience.

4. Student samples included only one large state-supported research university located in the southeastern United States.
5. Only students who enrolled as first-time freshman during the 1987 fall semester were included in this investigation.

6. Excluded were students enrolled in announced five-year degree programs for the bachelor's degree. Consequently, students enrolled in a Cooperative Education (CO-OP) Program and students enrolled in the College of Architecture were omitted.

7. Information concerning enrollment in a CO-OP program and enrollment that was continuously full-time was determined by student self-report.
Chapter Two

There is little literature available about the extended enrollment of college and university students. Therefore, the review of student persistence literature seems to be most closely related.

Review of Related Literature

There have been many reviews which address the persistence or non-persistence of college students (Beal & Noel, 1980; Lenning, Beal, & Sauer, 1980; Noel, Levitz, Saluri, & Associates, 1985; Pantages & Creedon, 1978; Pascarella, 1982; Summerskill, 1962, 1968). This literature has spurred the development of several models which seek to explain student persistence (Aitken, 1982; Bean, 1980; Braxton & Brier, 1989; Ethington, 1990; Spady, 1971; Tinto, 1975, 1987). The testing of these models, as applied to specific populations or institutions, frequently indicates relationships between variables that aid in understanding the complexity of student persistence (For example, Munro, 1981; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1983; Terenzini, Pascarella, Theophilides, & Lorang, 1985; Williamson & Creamer, 1988).
Variables, utilized in testing models and research on student persistence, provide, with revision and grouping, a useful structure by which to review the literature. The categories used in this paper will include background characteristics, educational aspirations, institutional characteristics, involvement, and other related findings, all developed by examination of research variables.

Background Characteristics

Almost invariably, every study of student persistence uses some measure of student background as an exogenous variable. Generally, the research literature supports the significant influence that various background characteristics have upon the college student and the persistence of that student within higher education. The extensive review of college impact literature suggest that growth is a function of the direct and indirect effects of five major variables, two of which are the student's background and precollege characteristics (Pascarella & Terenzini, 1991). Background characteristics discussed include influences of parents, socioeconomic status, ability, high school performance, gender, and ethnicity.
Parental Influences

Pantages and Creedon (1978) in a major review of the literature reported several studies that found no significant relationship between parents' education and student retention. Perhaps this finding is due to the lack of a direct effect between parents' education and student retention. However, the influence of the level of parents' education should not be quickly dismissed. There are numerous studies which show relationships between parents' education and several other variables that have been found to be significant in student retention. Significant direct influence of parents' education upon the development of goal commitment, pre-college aspirations, and institutional selectivity have been reported (Pascarella & Terenzini, 1991). Two studies have reported that family background, as measured by parents' education, had an influence upon initial institutional commitment but not goal commitment (Pascarella & Terenzini, 1983; Terenzini, Pascarella, Theophilides, & Lorang, 1985).

Recently, in their comprehensive review of the affects of college on students, Pascarella and Terenzini (1991) discussed the positive intergenerational effects resulting from the level of education that parents achieved. They presented evidence that the benefits of a college education are passed along to the next generation, parents thereby
influence their children through their own educational attainment and aspirations. Furthermore, Pascarella and Terenzini suggest that these intergenerational effects are reflected in increased socioeconomic status and also in cognitive growth, the development of values associated with tolerance, and a concern for human rights and liberties. They state that having college graduates as parents increases the financial resources, the selectivity of the college attended and to some degree educational attainment itself. It appears that these influences manifest themselves through indirect routes.

Boyer (1987) reported that parents exert the most influence on their children in selecting a college. That same study found that the parents who did not graduate from college exert the most influence on their children in making the choice to enroll in college. It seems likely that the educational level of parents exerts an influence in a complex manner, perhaps related to parental aspirations for their children, whereby college attendance is seen to benefit in terms of occupational status and the more instrumental, economic rewards of our society.

The influence of parental educational level can be reasonably asserted to influence student persistence in an indirect manner.
**Socioeconomic Status**

Evidence suggests that when controlling for the influences of academic aptitude, specific factors of family background and motivation, the importance of parental income or occupation related to persistence in college is minimized significantly (Astin, 1975; Pantages & Creedon, 1978). The literature is neither clear nor consistent about the relationship of socioeconomic status of the family and student persistence in college (Cope, 1978; Lenning, et al., 1980). Apparently, proportionally fewer disadvantaged students enter college and persist to graduation as compared to students from higher socioeconomic groups (Noel, et al., 1985; Lenning, 1982).

Recent studies have found a direct influence on goal and institutional commitment, both important factors in student persistence, and several individual attributes, one of which includes economic factors (Pascarella & Terenzini, 1983; Terenzini, Pascarella, Theophilides, & Lorang, 1985). Anderson (1988) found that goal commitment is the strongest single predictor of college choice, except for the socioeconomic composition of the family. Perceived parental aspirations, possibly developed in part due to the economic conditions of the family, have been reported by one study, Munro (1981), to have the strongest direct effect on educational aspirations, another important variable in
student persistence. Pointing to the limitations of the Tinto model of student departure, a study by Cabrera, Stampen, and Hanson (1990), in which they tested a model of the ability to pay, found a direct relationship between the ability to pay and persistence. McCauley (1988) reported that with regard to black students on a predominantly white campus, the family status of black students were factors affecting non-persistence. The effects of financial aid and student persistence, particularly regarding students from lower economic family conditions have been reported in the literature (Murdock, 1987, 1990) and will be addressed later in this chapter.

The inability of most studies to detect a direct relationship between socioeconomic status and student persistence may promote a misconception about the relative importance of this variable. The effects of economic conditions of families are complex and exert influence and interaction with many other variables such as educational aspirations, involvement, parental educational level, and commitments, both goal and institutional (Anderson, 1987; Lenning, et al., 1980).

Ability

Every model of college impact on students contains the initial ability of the college student as a part of the model (Pascarella & Terenzini, 1991). Ordinarily, models of
student persistence have some aspect of initial student ability as an integral part (Aitken, 1982; Bean, 1980; Braxton & Brier, 1989; Spady, 1971; Tinto, 1975, 1987).

Astin (1975, 1977) presented evidence that academic ability is one of the strongest predictors of student retention. In a review of the literature concerning student retention, Lenning, et al. (1980), report that most studies show a significant positive relationship between persistence and college entrance test scores. Lenning (1982), in a summary of the variables which affect attrition, states that students who have lower college entrance test scores are more likely to be non-persistent in their studies. McCauley (1988) presented evidence that one major college entrance test, the SAT, was not associated with persistence for black students. Additional support for the findings of McCauley are reported in a study by Nettles and Johnson (1987).

There exists evidence that ability also affects and interacts with other important variables related to student persistence in college. Anderson (1988), in a study of involvement of male and female students and college impact, found that ability significantly affects all forms of involvement and that the strongest effects occur on social status. In a study of educational aspirations, it was reported that academic aptitude has a direct positive relationship to college achievement and initial educational
aspirations for both men and women regardless of institutional selectivity (Pascarella, 1984). Pascarella (1985) found a significant direct relationship between academic aptitude, institutional selectivity and prestige, academic integration, social integration with faculty, educational aspirations after two years of college, and intellectual/academic self-confidence, in a study of the affective development of college students. One study of freshman intellectual and personal growth reported a direct negative relationship between the ACT composite scores and personal and intellectual development (Pascarella, Duby, Terenzini, & Iverson, 1983).

Academic aptitude is an important factor to be considered in understanding college student persistence. Both direct and indirect effects and interactions with other important variables associated with student persistence, warrant including this variable in the study of persistence.

High school performance

In some studies, high school performance combined with academic ability is an exogenous variable. However, several studies use the performance level of the high school experience as a endogenous measure. It is worth noting the findings from examples of these studies.

High school grade point average (GPA) and class rank both relate positively to retention (Lenning, 1982; Lenning,
et al., 1980). Lenning (1982) stated that the variance in retention explained by the high school GPA is often less than ten percent, but even given this relatively low rate of explanation, GPA in high school is the variable which is often the strongest single predictor related to attrition. In a study by Pascarella (1984), it was reported that secondary school achievement, as measured by grades, had a direct positive effect upon the initial educational aspirations of students and college achievement. Pascarella, Duby, Terenzini, and Iverson (1983) reported a direct positive relationship between secondary school grades and measures of personal and intellectual development, although this relationship was not significant. Alexander, Riordan, Fennessey, and Pallas (1982) suggested that high school achievement strongly affects a student's chances of completing college. Two studies found that pre-college schooling had a direct effect on early goal commitment but not institutional commitment (Pascarella & Terenzini, 1983; Terenzini, Pascarella, Theophilides, & Lorang, 1985).

Given evidence of direct and indirect effects of measures of high school performance, the important contribution of this variable becomes a necessary factor to be included in studies which seek to explain college student persistence as well as any other feature of the impact of college upon students.
Gender

It has been reported that gender is not a primary variable related significantly to retention (Lenning, et al., 1980). Braxton and Brier (1989), in a study testing a model of student attrition, found there were no direct effects for gender. The influence of this variable might be described not so much by direct or indirect effects, but rather in terms based on the uniqueness of the college experience, given the gender of the student. Support for this position exists based upon the emerging literature concerning the psychology of women (Belenky, Clinchy, Goldberger, & Tarule, 1986; Gilligan, 1982), and studies that tend to show variations in experience of college based upon gender (Anderson, 1988; Bean & Bradley, 1986; Bean & Kuh, 1984; Chapman & Pascarella, 1983; Nettles & Johnson, 1987; Pascarella, 1985). The recent work of Pascarella and Terenzini (1991) reviewed the vast literature that illuminates the differences of the college experience for men and women.

Ethnicity

Lenning, et al. (1980) stated that the lowest persistence probabilities for graduation are among students from Spanish-speaking backgrounds. Furthermore, they assert that blacks have lower chances of graduating than whites. In general, studies have not shown a direct relationship
between persistence and the ethnic background of students. The effects of race are therefore indirect and combine and interact in some manner with other variables which in turn influence persistence.

Like gender influences, ethnicity appears more a function of the unique experience of interaction within collegiate life and interactions with other important variables of persistence, rather than as a direct effect on persistence. For example, McCauley (1988) found that black students' family economic status, sex, and academic major were significant factors affecting the non-persistence of black students. Astin (1975) found that black students were not as likely to drop out of college if they were enrolled in a predominately black institution. Additional support for this position comes from other researchers as well (Allen, 1987; Guloyan, 1986; Livingston & Stewart, 1987). Nettles and Johnson (1987) reported that racial differences exist in measures of socialization on a number of other variables through the manner in which students experience the institution.

Educational Aspirations and Commitment

One of the most important factors related to college student persistence is a commitment to college (Hackman &
Dysinger, 1970; Lenning, 1982; Lenning, et al., 1980; Munro, 1981; Tinto, 1975, 1987). Pascarella and Chapman (1983), in a study of persistence of freshman using a multi-institutional sample, suggest that commitment to graduation had significant partial correlations with persistence regardless of the institutional type. Lenning, et al. (1980) stated that when the fit between the institution and the student is poor, commitment then becomes necessary for persistence.

Certainty of the educational goals students pursue has also been reported related to persistence (Anderson, 1985; Demitroff, 1974; Lenning, 1982; Lenning, et al., 1980; Munro, 1981; Tinto, 1975, 1987). Munro (1981) presented evidence from a national longitudinal study that show goal commitment as a more significant determinant of persistence and attainment than institutional commitment. The Munro study indicated that the goal commitment of women was more closely linked to the contexts of college and to attainment. In contrast, the goal commitment of men appeared more resistant to social influences as determinants of attainment, possibly more instrumental in nature.

The level of student aspirations and goals has an important relationship to persistence in college. Tinto (1987) indicated that students with higher educational or occupational goals are more persistent. Students who aspire
to a professional degree or a doctorate have been reported more likely to persist (Astin, 1975; Lenning, 1982; Lenning, et al., 1980). The initial aspirations of students also have been reported to relate to other important variables associated with persistence of college students. For example, early goal commitment has been reported to have a significant influence on the social integration of students (Pascarella, 1985). Pascarella and Terenzini (1983) found goal commitment also related to the level of academic integration of students.

Strong evidence exists about the importance of the initial aspirations and commitments related to student persistence in college. These influences are important in any complete understanding of college student persistence. Tinto (1987) writes that "...the college experience is as much (if not more) one of discovery as one of confirmation" (p. 43). This strongly suggests that the influence of attending an institution of higher education can support or change the initial aspirations and goals that students bring with them when they enroll. Tinto reported that about seventy-five percent of college students will experience some form of educational or occupational uncertainty during their collegiate career. However, Tinto also pointed out that when uncertainty is removed and both
educational and occupational goals are crystallized with more certainty toward the future, persistence is enhanced.

Institutional Characteristics

Lenning et al. (1980), in assessing the literature concerning student retention related to institutional characteristics, established the term "objective environment" to refer to the institution without the component of student involvement. In discussing the influence of the characteristics of institutions upon the persistence of college students, those aspects related only to persistence, without the component of student involvement, will be considered. Involvement will be considered later.

Size

One of the most frequent variables of institutional characteristics associated with studies of student persistence in college is size. In part, the issue of redundancy, a term that refers to a condition that exists in institutions when the numbers of people for a given setting exceed the numbers of opportunities for active participation or involvement, has been the underlying force behind the frequent use of this variable (Chickering, 1969; Feldman & Newcomb, 1969).
Feldman and Newcomb (1969) summarized a large body of research that indicated that large, spread-out, impartial campuses have lower rates of retention. Kamens (1971) found that large institutions have greater impact on occupational commitments than do smaller institutions and have lower dropout rates for both the more able student and more specifically, for males. Astin (1975) reported that lower retention rates were generally found in colleges with enrollments less than 500 students, with no apparent upper limit affecting retention. Pascarella and Chapman (1983) found that the size of an institution is inversely related to both academic and social integration, both important factors of student persistence. Furthermore, they stated that the institutional size tended to increase the extent of social life centered on campus, but decreased students' informal contact with faculty. Pascarella and Terenzini (1991) presented a summary conclusion, after an extensive review of the literature, stating that the literature consistently reports that attending a large institution tends to exert a negative influence on dimensions of social involvement.

Selectivity and Prestige

Some studies have reported that persistence in college students is enhanced if attending a prestigious and selective institution (Astin, 1975, 1977; Feldman & Newcomb,
1969; Lenning, 1982; Tinto, 1987). This may be due to a perception on the part of the student that the benefits of graduating from a prestigious and selective institution may outweigh the dissatisfactions which may incur. Additionally, the achievement of gaining admission to a highly selective and prestigious institution represents an important accomplishment which indeed affects the commitment that a student makes to an institution (Lenning, et al., 1980; Pascarella & Terenzini, 1991). One study found that measures of student body selectivity and institutional financial resources, both aspects of prestige, had a significant positive influence on the attainment of a bachelor's degree (Stocker, Pascarella, & Wolfle, 1988).

Alexander and Eckland (1977) reported that the selectivity of a college has no direct effects on educational attainment apart from negative effects on grades and the academic self-concept of women. Anderson (1988) stated in a review of the literature that evidence exists to suggest college selectivity lowers grades, which lowers academic self-concept and goals, and adds a negative indirect effect to other positive effects of selectivity. Anderson further stated that, in a study of the involvement of male and female students, no effect on academic performance as a result of the quality of an institution was found.
Institutional Type

Attending a private, rather than a public college, has a positive net effect on persistence (Astin, 1975, 1977; Lenning, et al., 1980; Lenning, 1982; Smart, 1986). Again, like selectivity, it is argued that institutional commitment may be the operative factor in increased persistence at private institutions due to cost and possible selectivity features (Pascarella & Terenzini, 1991). Tinto (1987) suggested that this apparent difference between public and private control related to student persistence, is a reflection, in part, of differentials in recruitment and the possible self-selection of students.

Characteristic of studies that examine the effects of institutional type as categorized by residential universities, residential four-year colleges, and two-year colleges and other forms of non-residential institutions, is the finding that four-year colleges and universities have higher retention rates than do all forms of commuter institutions (Lenning, 1982; Lenning, et al., 1980; Pascarella and Chapman, 1983; Pascarella & Terenzini, 1991). Pascarella and Chapman reported notable differences in the decisions of persistence/withdrawal, finding that the general pattern that emerges is one where the persister from residential universities and liberal arts colleges appear more involved and integrated into the social and
interpersonal aspects of the institution than do all other forms of institutions.

There are studies that indicate that attending a residential college or university enhances persistence (Pascarella & Terenzini, 1991). Chickering (1974) presented a large body of evidence indicating that the residential, as opposed to the commuter, experience has significant effects upon the academic, personal, and social development of college students, in addition to a positive effect on persistence. Pascarella and Chapman (1983), in a study of institutional type relative to persistence, indicated that the residential character of an institution leads to increased levels of academic and social integration.

Other factors

There are some other factors that appear in the literature concerning the relationship of institutional characteristics to the persistence of college students. For example, (Lenning 1982) reported that religious affiliation tends to increase retention and that Catholic colleges have higher rates of retention than do Protestant colleges. Lenning et al. (1980) reported that those institutions where the mission and role are clear in definition have increased retention.
Lenning et al. (1980) state that little research exists upon the effect of student services on persistence, however, Lenning (1982) reported that the availability and use of services such as counseling, advising, orientation, and learning centers generally promotes persistence. Forest (1985) reported that student learn more and are more satisfied at institutions with strong advising and orientation programs.

Curricular concerns also are present in the literature. Evidence has been presented that suggest institutions having an individualized, practical instructional style with emphasis on problem solving rather than recall have higher rates of persistence to graduation. Hearn (1987) contends that the contextual factors in the major department such as grading practices, size, and faculty support of students must be considered to understand the full impact of the academic major upon educational attainment.

Involvement and Integration

"Students learn by becoming involved" (Astin, 1985, p.133). The importance of involving and integrating students into the life of the college or university is well documented (Astin, 1975, 1977, 1985; Boyer, 1987; Feldman & Newcomb, 1969; Pascarella & Terenzini, 1991; Tinto, 1975,
Astin (1985) developed a theory of student involvement which states that the level of physical and psychological energy that a student brings to bear upon the collegiate experience is directly proportional to the quality and quantity of student involvement. Lenning et al. (1980) conclude that "Whatever the form of involvement, persistence in the institution is likely to improve with increased involvement" (p.21). Tinto (1987) states that the higher the degree of involvement into the academic and social systems of the college, the higher the commitment to the institution and the completion of attainment goals.

**Academic Involvement**

As presented by Tinto (1987) academic involvement has both a formal and informal structure. The formal structure consists of those aspects of a student's education that occur in the classroom or laboratory. The informal structure of academic involvement results from the interactions that the student has with faculty and staff outside the classroom. Tinto also argues that academic integration is determined by academic performance and level of intellectual development. Studies show that undergraduate grades seem to be the best predictor of degree attainment (Ethington & Smart, 1986; Stocker, Pascarella, & Wolfle, 1988). Pascarella and Terenzini (1991) write that "... a measure of successful adaptation to an academic
environment, grades tend to reflect not only requisite intellectual skills but also desirable personal work habits and attitudes" (p. 388).

Astin (1975, 1977) reports that retention increases with student involvement in foreign-study and honors programs. Additionally, earning good grades also tends to increase persistence. Astin suggest that students who are involved in the academic life of the institution are more likely to get good grades in that they are more likely to spend the effort needed to do so. Braxton and Brier (1989) found a direct effect between academic involvement and race, participation in decision making, fairness in policy, rule enforcement, grading, and awarding scholarships, however, they also found that academic integration has an indirect effect on student persistence. Munro (1981) reported that academic integration had a strong effect upon institutional commitment.

Literature that deals with the informal structure of academic involvement and integration tends to focus, to a very large extent, upon the out-of-class contacts between students and faculty. The importance of student-faculty contact and the benefits derived from such contact have received much attention (Gamson, 1967; Lacy, 1978; Pascarella, 1980; Pascarella & Terenzini, 1976, 1977, 1979; Pascarella, Terenzini, & Hibell, 1978; Phelan, 1979; Weidman,
1979; Wilson, Wood, & Gaff, 1974; Wilson, Gaff, Dienst, Wood, & Bavery, 1975). The effects of student-faculty informal contact tend to increase persistence in a strong manner (Pascarella, 1980).

Out-of-class interactions between students and faculty to discuss career concerns has a positive effect for freshman who persist in college (Pascarella & Terenzini, 1977, 1981). A study by Phelan (1979) found that student-faculty interaction within the major resulted in positive changes in orientation toward scholarly and scientific careers for both men and women. Weidman (1979) presented evidence that a student's orientation toward career eminence is influenced by interaction with faculty.

Students who frequently interact with faculty report such interaction as being a source of satisfaction (Wilson, Gaff, Dienst, Wood, & Bavery, 1975; Wilson, Wood, & Gaff, 1974). Pascarella and Terenzini (1976) found frequent student interactors with faculty rated their academic program and non-academic lives higher on a scale termed interest value. Astin (1977) found a relationship between student-faculty interaction and overall satisfaction with the college environment in a national sample.

Results of a study by Spady (1971) indicate that student-faculty involvement significantly influenced grade point average and intellectual development. Endo and Harpel
(1982) found that informal contact with faculty had a direct positive relationship on several items including attitudes toward the importance of self-directed learning, adequacy of general knowledge and math skills, development of speaking and problem solving skills, progress toward intellectual goals, and participation in cultural activities. The formal structures of social involvement refer to the college-sponsored activities such as plays, musical events, films, speakers and other forms of what is often referred to as extracurricular activities. The informal structure of social involvement are those activities that arise out of the day-to-day activities outside the formal rules and regulations of the institution.

Pantages and Creedon (1978) concluded that the documentation to support the positive role of extracurricular activities in persistence was too little. Lenning (1982) reports that unless excessive, the involvement of students in various extracurricular activities, including campus employment, tends to support student persistence. There exists evidence to suggest a positive effect of extracurricular involvement on persistence (Munro, 1981; Pascarella & Chapman, 1983) while other reported results are less supportive (Bean, 1985; Terenzini & Pascarella, 1977, 1978). McCauley (1988) reported that the persistence of black students was not
associated with out-of-class activities. A summary of literature related to student involvement and extracurricular activities states that students who are involved in out-of-class activities tend to be more positive about their college experience, and more satisfied with their social life and academic major (Kuh, Schuh, & Whitt, 1991). Furthermore, Kuh et al. state that participation in out-of-class activities has a positive influence on both social integration and institutional commitment.

Evidence exists that supports the premise that establishing close friendships with other persons, particularly student peers, increases persistence (Astin, 1975, 1977; Pantages & Creedon, 1978; Pascarella & Terenzini, 1991). Lenning (1982) reports that the frequency and quality of peer group interaction affect persistence particularly if there is compatibility in lifestyles and values. Lenning et al. (1980) also support the positive influence of peer group involvement and suggest that the educational values within the peer group are most important.

Other Findings

Bean (1985) reports that integration into the social and academic systems of the institution may not occur in a fixed pattern or have the same influence on persistence during the collegiate experience. Bean suggests the integration of the student into the life of the college is
most critical during the freshman year. Social integration or involvement has been reported to have a significantly more positive impact on freshman year persistence (Pascarella & Terenzini, 1983). Pascarella (1985) found that colleges with high levels of social interaction also had high levels of educational aspirations for sophomore students. Anderson (1988) presented evidence which indicates that highly involved students are far more likely to maintain their goal commitment and to achieve those goals. Anderson also suggests that for both genders, goal commitment is more important with relation to attainment than is institutional integration or commitment.

There is also some evidence that suggests compensation between the levels of social or academic integration. Students having a low level of social involvement may compensate with a higher level of academic involvement and vise versa (Pascarella & Terenzini, 1991). However, the importance of involvement appears as a strong aspect of student persistence.

Models of Student Persistence

A number of models have been developed as an attempt to explain the process of student persistence in college (Aitken, 1982; Bean, 1980; Braxton & Brier, 1989; Ethington,
1990; Spady, 1971; Tinto, 1975, 1987). These models have in common the idea that student persistence is a question of student fit with the institution. The use of these models has aided in testing assumptions concerning student persistence and have been useful in ferreting out important information concerning possible relationships and interaction between the many variables thought to be important to persistence in college.

Spady (1971) developed a theoretical model of the student dropout process. The model utilized an idea from work in suicide which was based upon the belief that the membership in a group with shared values and support for one another would reduce incidents of suicide. Consequently, Spady applied this concept to the student dropout, which can be characterized as a form of academic suicide. Simply, Spady's model theorizes that shared values, grade performance, congruence with the norms within an institution, and support from friends, lead to increased satisfaction on the part of the student. In turn, this increased satisfaction would lead to an increase in institutional commitment. Institutional commitment would reduce the probability of dropping out.

Perhaps the most widely used model of student persistence and withdrawal decisions is that of Tinto (1975, 1987). Tinto, building upon the work of Spady (1971),
formulated a longitudinal model which explains that as students enter the college environment they bring with them a host of background characteristics related to family, prior schooling, and individual attributes, that interact and influence the development of goals, both institutional and educational. These background characteristics influence the students' interaction with the academic and social systems within the college along with institutional and goal commitments. The more integrated the student in the informal and formal systems of the college, the more satisfaction, the more commitment to goals, and the more likely that the student will persist.

Noting problems with existing models of student persistence, Bean (1980) developed a model adapted from a method used to explain turnover in work settings. Additionally, Bean also used the work of Tinto (1975) in several important ways. The model indicates that the background characteristics influence the interaction of students with the college environment. The student interacts with the environment, obtaining grades and memberships in campus organizations (objective measures upon which to base perceptions) along with perceptions of the practical value and quality of education (subjective measures). These objective and subjective perceptions are expected to influence the satisfaction of the student which
tends to increase institutional commitment and thus increases persistence in college. One important addition that Bean made to model development was the addition of organizational determinants as important variables in seeking to explain student persistence.

Aitken, (1982) sought to create a model of student persistence which could be effectively used by an individual institution and also explain the underlying relationships of the persistence process. Citing a failure of other models, in that they did not recognize that a multiequation model was needed to adequately explain the structural relationships that determine persistence, Aitken developed a complex mathematical model based upon four equations. The formula for retention indicates that it is a function of satisfaction with the academic program, satisfaction with the living environment, the student's academic performance, the level of involvement, and external forces. Specific formulas for academic satisfaction, living satisfaction, and academic performance also were produced. In a test of the model, Aitken states that the model was successful in differentiating variables, direct and indirect, in addition to identifying significant variables.

Braxton and Brier (1989) developed a model based upon the work of Tinto (1975, 1987) and Bean (1980). They sought to merge both the interactionist approach of Tinto with the
organizational approach of Bean. The Tinto model was the basic framework upon which were added measures of organizational influence which had as a focus measures of communication, fairness, and participation. Results were mixed in that, while one or more of the organizational attributes exerted direct effects upon academic and social integration, none of the attributes had an indirect effect upon student persistence. However, Braxton and Brier suggest that the inclusion of organizational variables into interactional models of student persistence would be valuable.

A psychological model of persistence was created recently by Ethington (1990). Adapting models of student academic choice and using the empirical work in decision making and attribution theory, a general model which includes psychological and social components was developed. The model specifies that past achievements and socialization experiences combine and interact with expectations for success and the subjective value of the outcome. Perceptions of ability, individual goals, and task demands exert a direct influence upon expectancies and values. The belief and values of socializers in turn influence these constructs. Each of these constructs then is believed to mediate influences on persistence. Ethington reports that the test of the model lends only slight support for the
validity of using models of academic choice within this framework. It was found that value does exert a positive effect and serve as a mediator for some indirect influences, but no influence was reported based upon expectations.

A New Model of Student Persistence

The models which exist to explain student persistence have a number of shortcomings. Among these are the methods and measures used to operationalize the variables in question (Pascarella & Terenzini, 1991). The variance explained related to persistence has been relatively low. Examples of main effects variance explained by studies using the models include Munro (1981) which explained 15%, Bean (1980) which explained 21%, Pascarella, Duby, and Iverson (1983) which explained 16%, Pascarella and Terenzini (1983) which explained 19%, and Terenzini et al. (1985) which explained 11.5%. Ethington (1990) reports that the psychological model explained 14% of the variance in persistence. While this may be acceptable, perhaps other important variables concerning the experience of college students are missing from the models.

Lenning et al. (1980) indicates that student concern about finances is perhaps the most important variable
related to finances. For example, one recent study used a model where the effects of the ability to pay related to student persistence were investigated (Cabrera, et al., 1990). The effects of the ability to pay were found to be significant and the results of the model containing the indicators of the ability to pay alone yielded an explained variance of 14% with regard to persistence. In addition, Cabrera et al. found that the ability to pay moderates the effect of goal commitment upon persistence.

These student concerns about financial support give rise to an idea of emotional support. While most models employ some aspect of emotional support within their structure, such support is only considered within the context of the college environment itself. Perhaps the explained variance related to persistence could be improved by a more expanded and direct measurement of emotional support. Such support could come from a variety of sources such as faculty, staff, roommates, dating partners, parents, or former coaches or teachers. Apparently, no study of student persistence includes such a direct measure of emotional support. Haller and Woelfel (1972) write about the effects of the "significant other" which they define as a person who influences an individual's conceptions of self and orientation to life through either interaction with the individual or by example. It would be important to know who
has been significant in providing support which leads to persistence in college.

Because of the research and literature concerning student persistence, a new model, that takes into consideration the important variables, some of which are relatively new, is needed. Such a model owes much to the considerable efforts of past scholars in that elements of past models blend to form the new.

Figure 1 represents a new model of student persistence. The model theorizes that family background, particularly parents' educational level, has a direct effect upon a student's ability and skill development and prior schooling experiences. Family background, now including socioeconomic status in addition to parents' level of education, will have a direct effect upon intentions to attend college and the educational aspirations reflected in commitment, both goal and institutional. Family background also has a direct effect on financial support and the ability to pay which in turn has a direct effect upon intentions to attend college, goal and institutional commitment, institutional characteristics, social and academic integration, and persistence/enrollment decision. Ability and prior skills directly relate to intentions and commitment, which directly relate to institutional characteristics, which in turn has a
Figure 1 Model of Extended Student Enrollment
direct effect upon integration into the academic and social systems of the college and future intentions and goals. Academic involvement and social involvement have a direct relationship. Academic involvement is directly related to academic integration which has a direct effect upon future intentions and commitment. Social involvement has a direct effect upon social integration, which has a direct effect upon future intentions and commitment. Emotional support is directly related to family, initial commitment, and goals, involvement, and integration in academic and social systems, subsequent goals and commitments, and persistence. Satisfaction with the college experience is directly related to financial support, involvement and integration in the academic and social systems of the college, emotional support, subsequent goals and commitment, and persistence. Subsequent goals and commitment have a direct effect upon persistence. It is thought that the points at which the lines of the model intersect represent critical times in the collegiate experience. Complex as the model seems, its utility in explaining persistence and understanding the experience of college students remains to be tested.
Chapter Three

Design Of The Study

This study investigated student perceptions of the influences of university faculty associated with the enrollment pattern between Extenders and Completers. The nature of this study was *ex post facto* and used survey research methodology. The use of the Model of Extended Enrollment, mentioned in Chapter Two, served as a structure to guide the collection of data. The Model of Extended Enrollment was reduced to appertain to the postulated influences of university faculty. This model is illustrated in Figure 2. Gender, ethnicity, and initial student ability were exogenous variables and not specifically identified in Figure 2. All variables are specified in the next section.

Variable Specification and Measurement

The following is a list of the independent and dependent variables used in this study. Also included is a description of the measurement methods applied to each variable. The questionnaire used for this study is found in Appendix A.
Figure 2. Reduced model of extended enrollment
**Independent Variables**

1. **Ability**
   The composite score on the SAT was used to measure this variable. The code for this variable was the actual composite score obtained from university records.

2. **Gender**
   A categorical variable, gender was dummy coded with males receiving a code of one, and females receiving a code of zero. Information was obtained from university records.

3. **Ethnicity**
   A categorical variable, ethnicity was dummy coded with whites receiving a code of one, and minorities receiving a code of zero. The number was insufficient to further categorize minorities into smaller ethnic groupings. Information was obtained from university records.

4. **Institutional Environmental Press**
   This variable was measured from the survey responses of the sample populations selected and measured on an interval scale. Students responded
"yes" or "no" to each question formulated into two scales (Astin & Panos, 1969; Pascarella, 1984). The specific questions were as follows:

**Academic or Intellectual Competition Scale**

a. Students are under pressure to get high grades.

b. Students are very bright academically.

c. Competition is keen among most students for high grades.

d. Course work is definitely more theoretical than practical.

e. Classes are usually informal.

The alpha for this scale equals 0.89 (Pascarella, 1984).

**Impersonalism and Inaccessible Faculty Scale**

a. Students are treated like "numbers in a book".

b. There is little or no contact with faculty.

The alpha for this scale equals 0.92 (Pascarella, 1984).
5. **Major**

A categorical variable, the use of dummy codes was applied to each student's major. Determination of the appropriate grouping of majors was dependent upon distribution within the samples in that some majors may have very small numbers and a larger grouping may therefore be necessary.

6. **Characteristics of Major Faculty**

Permission was obtained to use this scale as adapted for this study from Hearn (1987). Students responded to seven questions about the characteristics of faculty in their major using a four point scale: hardly ever true, occasionally true, frequently true, or almost always true. Hearn reported that the analysis of variance of student responses to the scale was significant among departments and on each of the items alone. Students were asked to think of the faculty within their major in responding to the following phrases: Faculty in my major...

a. Helped and supported students.
b. Provided opportunities for social interaction with other students.

c. Engaged students in stimulating discussions.

d. Clearly explained the requirements, rules and regulations.

e. Encouraged students to become involved in their work.

f. Emphasized variety and new approaches in student work.

7. **Characteristics of Non-major Faculty.**

This variable was measured with the same procedure as the characteristics of major faculty. The major change was that students were asked to think of faculty outside their major in responding to the six phrases.

8. **Pattern of Developing a Major**

The use of four categorical variables were used to measure this aspect of student experience. Each statement was dummy coded such that an affirmative to the statement received a code of one and
a negative or a no response received a
code of zero. The statements were as
follows: Which statement best describes
your experience?
a. I started undecided but
eventually developed a major.
b. I started with a major and
remained in that same major.
c. I started with one major but
changed to another.
d. I changed my major two or more
times.

9. **Student-faculty Interaction with Major
Faculty Scale**

This variable was measured through use
of a scale developed by Pascarella and
Terenzini (1980). Students responded
using a five point scale regarding their
interactions with faculty within their
major. The scale was designed such that
1 = strongly disagree and 5 = strongly
agree. Two studies report the alpha to
be equal to 0.83 (Pascarella, Duby,
Terenzini, & Iverson, 1983; Pascarella &
Terenzini, 1980). The scale is as follows:

58
Interactions With Faculty Scale

a. My nonclassroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes.

b. My nonclassroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas.

c. My nonclassroom interactions with faculty have had a positive influence on my career goals and aspirations.

d. I have developed a close, personal relationship with at least one faculty member in my major.

e. I am satisfied with the opportunities to meet and interact informally with faculty.
10. **Student-faculty Interactions with Non-major Faculty Scale.**

This variable was the same as item nine above except students responded to the questions regarding interactions with faculty outside their major.

11. **Major Faculty Concern for Teaching and Student Development.**

Measurement of this variable was made by use of a scale developed by Pascarella and Terenzini (1980). Students responded to each item using a five point scale where 1 = strongly disagree and 5 = strongly agree. Items with negative loadings, items one to three, were coded in reverse order. The alpha for the scale has been reported to be 0.82 (Pascarella, Duby, Terenzini, & Iverson, 1983; Pascarella & Terenzini, 1980). The scale is as follows:

a. Few of the faculty I have had contact with are generally interested in students.
b. Few of the faculty that I have had contact with are generally outstanding teachers.

c. Few of the faculty that I have had contact with are willing to spend time outside class to discuss issues of interest and importance to students.

d. Most of the faculty that I have had contact with are interested in helping students grow in more than just academic areas.

e. Most of the faculty that I have had contact with are genuinely interested in teaching.

12. **Non-major Faculty Concern for Teaching and Student Development.**

This variable was the same as item eleven above with the exception that students responded to the questions as related to faculty outside their major.
13. **Career Orientation**

This variable was measured by four separate questions related to the plans that students have after graduation. Each question was treated as a categorical variable and assigned a dummy code with one meaning an affirmative response and zero meaning a negative or no response. The response categories are as follows:

a. I started undecided but eventually developed a major.

b. Entering the job market is my plan.

c. I already have a job.

d. Graduate or professional school enrollment is my plan or situation directly following the completion of my degree.

**Dependent Variable**

1. **Extended Enrollment/Completion**

This variable was categorical and coded such that Extenders received a code of one and Completers received a code of 2.
Population of the Study

The population for this study was derived from a large land-grant research university located in the southeastern United States. A random sample of 1,562 students was selected from the 4,235 first-time freshman enrollments during the 1987 fall semester. Four years later, university records indicated that from the selected sample, 617 students completed a degree (Recent Graduates, Spring 1991), 416 had dropped-out, and 529 were still enrolled (Continuing Students) during the 1991 fall semester.

Questionnaires were mailed to 500 Continuing Students and to 523 Recent Graduates, all of whom entered the university as first-time freshman during the 1987 fall semester. Students were identified as Completers or Extenders based upon self-report information provided by responses to the questionnaire. Subjects enrolled in the College of Architecture and those who self-reported enrollment in a CO-OP program were excluded since these programs were announced five-year programs.
Procedures

Permission

Permission was received from Dr. Hearn to use the Characteristics of Faculty Scale (Hearn, 1987) and from Dr. Pascarella to use the Faculty Concern for Teaching and Student Development Scale, and the Interactions with Faculty Scale (Pascarella, 1984). Certification of the exemption of projects involving human subjects was received from university officials.

Data Gathering

A questionnaire was developed to measure variables associated with student perceptions of faculty, career orientation, enrollment history, and pattern of developing a major (Appendix A). Data concerning each subject's grade point average, verbal and math Scholastic Achievement Test scores, gender, ethnicity, major, and college affiliation were obtained from university records. Each subject was given a code to protect the anonymity of response and to facilitate a follow-up mailing for non-respondents. To receive the information from the university records, an agreement was made not to explicitly state the name of the university used for this study without written permission of the provost.
The questionnaire was mailed to each subject during the second week of October 1991. A separate cover letter was used for Recent Graduates (Appendix B) and Continuing Students (Appendix C). Ten days after the questionnaire was mailed, each subject was sent a postcard reminder (Appendix D). A follow-up mailing for those subjects who were non-respondents occurred during the second week of November 1991. Separate cover letters were sent to Recent Graduates (Appendix E) and Continuing Students (Appendix F).

Statistical Analysis

All information provided by the university and each respondent's questionnaire were coded for computer analysis using version 4.0.1 of the Statistical Package for Social Sciences (Norusis, 1990a). All statistical analysis was performed on a 386 IBM compatible personal computer. The minimum critical value of .05 was used in all statistical procedures used in this study.

Chi-Square Test of Independence

Several variables were measured on a nominal or ordinal scale and conformed to nonparametric statistical procedures (Hinkle, Wiersma, & Jurs, 1979; Norusis, 1990a, 1990b). These variables included gender, ethnicity, college affiliation, pattern of developing a major, summer
attendance, faculty contact, the Academic Competition Scale, and the Impersonalism and Inaccessible Faculty Scale. A Crosstabs procedure and the associated Chi-Square Test of Independence was selected to examine differences between questionnaire respondents and non-respondents and between Extenders and Completers relative to these variables (Norusis, 1990a, 1990b).

The Chi-Square Test of Independence enables the determination of whether a systematic relationship exists between two variables measured by nominal or ordinal scales (Huck, Schuyler, Cormier, & Bounds, 1974; Kerlinger, 1973). The process involves the computation of the cell frequencies which would be expected if no relationship existed between the variables, given the actual row and column totals. The expected cell frequencies are compared to the actual values of the crosstabulation and probability is based upon the Chi-Square statistic (Hinkle, Wiersma, & Jurs, 1979; Norusis, 1990a).

The greater the differences between the expected and actual frequencies, the larger the Chi-Square becomes. The probability of obtaining a Chi-Square value as large or larger than the one established from the sample, when in fact the variables are actually independent, permits determination of whether a systematic relationship exists given the degrees of freedom within the crosstabulation.

**t-Test of Independent Samples**

Variables such as grade point average, verbal and math Scholastic Achievement Test scores, Characteristics of Faculty Scales, Interaction with Faculty Scales, and Faculty Concern for Teaching and Student Development Scales were measured using interval level measures. The t-Test of Independent Samples was the statistical procedure selected to examine differences between questionnaire respondents and non-respondents and Extenders and Completers associated with interval level measured variables (Norusis, 1990c).

The application of the t-Test assumes that variables are measured at the interval or ratio level and the variable is normally distributed in the population. A statistic called the "Student's t" is computed to enable determination of the probability associated with the observed difference of sample means (Hinkle, Wiersma, & Jurs, 1979; Huck, Cormier, & Bounds, 1974). A two-tailed probability was used to examine the likelihood of obtaining a difference as large or larger than the one observed in the sample, when there is actually no difference in the population, given the absence of prior knowledge as to the direction of the t value (Hinkle, Wiersma, & Jurs, 1979; Norusis, 1990b, 1990c).
Correlation

A statistical correlation procedure was employed to measure the linear association between all significant variables resulting from the Chi-Square Test of Independence and the t-Test of Independent Samples (Norusis, 1990c). Variables not measured at the interval level were dummy coded and treated as continuous measures in order to meet the assumptions related to data used in the correlation procedure (Hinkle, Wiersma, & Jurs, 1979; Kerlinger, 1973; Pedhazur, 1982).

Norusis (1990c) describes the correlation procedure used in this study as a summary of the relationship between two variables. This summary uses a single number, based upon the Pearson correlation coefficient, called the correlation coefficient \( r \), to indicate the degree to which variation in one variable is related to variation in another. The values of the correlation coefficient can range from a value of positive one, to indicate a perfect positive linear relationship between two variables, to a value of zero to indicate no linear relationship between two variables, to a value of negative one to indicate a perfect negative linear relationship between two variables.

A statistical test that there is no linear relationship between two variables can be based upon the test statistic referred to as the Student's t distribution with \( n - 2 \)
degrees of freedom (Hinkle, Wiersma, & Jurs, 1979; Norusis, 1990b, 1990c). The probability of obtaining a correlation coefficient as large or as small as that observed in the sample, when the value of the correlation coefficient is zero in the population, can be determined (Hinkle, Wiersma, & Jurs, 1979; Norusis, 1990b, 1990c). A two-tailed test of significance was used in this study due to the lack of a priori knowledge of the direction of the correlation.

**Discriminant Analysis**

A discriminant analysis procedure was used to determine the influence of student perceptions of faculty on the enrollment pattern between Extenders and Completers. This procedure was chosen because it was designed for regression type research questions which have an a priori categorical dependent variable and metric level independent variables (Hair, Anderson, & Tatham, 1987; Kerlinger, 1973; Norusis, 1990d). Hair, Anderson, and Tatham (1987) indicate that the objectives of discriminant analysis are as follows: (a) determining statistical differences relative to several independent predictor variables between two a priori defined groups (Extenders/Completers); (b) classifying cases into the a priori defined groups based upon a linear combination of average scores found statistically significant among the independent variables; and (c) stipulating which of the independent predictor variables and their associated average
score profiles account most for the differences between the two a priori groups.

There are two basic assumptions for the discriminant analysis procedure. First, the variables are assumed to be measured from multivariate normal distributions. Second, the covariance matrices for each group are assumed to be equal. Examination of the distribution of each variable ascertains the satisfaction of the first assumption and a Box's M test enables determination of the second assumption.

The mathematical goal of discriminant analysis is to linearly combine and weight the discriminating variables such that the groups (for this study Extenders and Completers) are impelled to be as statistically disjunctive as possible, resulting in a discriminant function (Hair, Anderson, & Tatham, 1987; Pedhazur, 1982). This separation was accomplished by developing the linear combination which used the statistical decision rule of maximizing the between-group variance relative to the within-group variance. A stepwise procedure of entering the significant independent variables was utilized and was based upon maximizing Mahalanobis' Distance between the two groups (Hair, Anderson, & Tatham; Norusis, 1990d).

The multiplication of each independent variable score by its coinciding weight and adding these products together results in a single discriminant score for each individual
in the study. Averaging the discriminant scores for each group results in a group average which is referred to as a group centroid. The statistical significance of the discriminant function is determined by comparing the distance between the group centroids (Hair, Anderson, & Tatham, 1987; Norusis, 1990d; Pedhazur, 1982).

The adequacy of the discriminant function was found by developing and applying a classification function for each group which permitted the prediction of probability of group membership for each individual. To avoid an upward bias in the prediction accuracy (hit ratio) of the discriminant function, a cross-validation procedure, where the sample was split into an analysis group and a holdout group, was used (Hair, Anderson, & Tatham, 1987; Norusis, 1990d).

Norusis (1990d) indicates that the proportion of the total variance due to differences between the groups can also be a measure of the effectiveness of the discriminant function. The square of the canonical correlation provided this measure and allowed the derivation of the amount of the total variance explained due to differences between Extenders and Completers relative to the discriminant function.
Chapter Four

The purpose of this study was to investigate the influence of faculty on the length of enrollment as perceived by students who extended their continuous full-time enrollment beyond eight semesters (Extenders), compared to students who completed their degree within eight semesters (Completers). The results of this study are presented in this chapter.

Response Analysis

Information concerning gender, ethnic background, major, college, verbal and math Scholastic Achievement Test scores and grade point average were obtained from university records for each subject in the study. The college in which the major was located was used in all analyses. Major was dropped as a variable due to the unequal distribution of students and small numbers for several majors.

The ethnic background of the subjects of this study was transformed into two categories, minority and white, due to small numbers in various ethnic groups. The minority population total was 94 (10.0%) and the white population was 827 (90.0%).
Questionnaires were mailed to 500 students who were enrolled during the fall semester 1991 and whose first-time enrollment as a freshman was during the 1987 fall semester (Current Student Sample). The same questionnaire was mailed to 523 spring 1991 graduates (Recent Graduates Sample), whose first-time enrollment as a freshman was during the 1987 fall semester. A total of 1,023 questionnaires were mailed. Eight questionnaires were received in unusable form and 33 were undeliverable leaving a total sample of 981. Sixty students were excluded due to being enrolled in an announced five-year academic program (Architecture), leaving 422 current students and 499 recent graduates for a total combined sample of 921.

**Current Student Sample**

A total of 218 (51.7%) usable questionnaires were returned from the current student sample of 422 students. These students entered the university as first-time freshmen during the 1987 fall semester, and were still enrolled nine semesters later during the 1991 fall semester. A comparison of questionnaire respondents and non-respondents of the current student sample was made using a Crosstabs procedure and the associated Chi-Square Test of Independence regarding possible differences in response status related to gender, ethnicity, and college. The three variables, gender (Chi-Square = 2.87, df = 1, p > .05), ethnicity (Chi-Square =
3.31, df = 1, p > .05 ) and college (Chi-Square = 7.89, df = 6, p > .05), resulted in no statistical difference. Respondents were therefore considered to be representative of the larger population.

The verbal and math SAT scores were examined in relation to the response status using the t-Test for Independent Samples for each variable. The mean verbal SAT score between respondents (515) and non-respondents (513) was statistically equal (t = -0.18, df = 410, p > .05). The math SAT mean score between respondents (617) and non-respondents (604) was also found to be statistically equal (t = -1.66, df = 410, p > .05). Respondents were considered to be representative of the larger population relative to the verbal and math SAT scores.

A comparison of grade point averages between respondents and non-respondents resulted in a low statistical probability that the means were equal (t = -2.67, df = 420, p < .01). The respondents' mean grade point average was 2.59 compared to the mean grade point average of 2.46 for non-respondents. Therefore, a statistical difference between respondents and non-respondents within the current student sample was noted for grade point average, with respondents tending to have higher average grades than non-respondents.
Recent Graduates Sample

A total of 287 usable questionnaires representing a response rate of 57.5% were returned from the spring semester 1991 graduates sample of 499 recent graduates. These students entered the university as first-time freshman during the fall semester 1987 and earned a degree within eight semesters. The Crosstabs procedure and the associated Chi-Square Test of Independence, between respondents and non-respondents of the recent graduates sample regarding possible differences in gender and college affiliation, was implemented. The results indicated that the variables of gender (Chi-Square = 1.62, df = 1, p > .05) and college (Chi-Square = 0.53, df = 5, p > .05) were independent of the response status and therefore representative of the larger population.

Ethnicity (Chi-Square = 8.31, df = 1, p < .05) was found not to be independent of the response status with 65.7% of minorities in the sample not responding to the questionnaire.

The mean grade point average for respondents was 3.01 compared to the mean grade point average of 2.91 for non-respondents. The grade point averages were examined in relation to the response status using an individual t-Test
for independent samples. The grade point average
(t = -2.10, df = 415, p < .05), between respondents and non-
respondents, resulted in a significant difference.

The mean verbal SAT score of 528 for respondents and
522 for non-respondents was found not to be significantly
different (t = -0.84, df = 418, p > .05). The mean math SAT
score difference between respondents (602) and non-
respondents (614) was also found to be non-significant
(t = 1.50, df = 453, p > .05).

In summary, the recent graduates sample had significant
differences between responders and non-responders to the
questionnaire regarding the variables of ethnicity and grade
point average. Minority non-response rates were high and
non-responders tended to have lower grade averages.

Demographic Comparisons Between Extenders and Completers

Two groups emerged as the final subjects for this study
and were comprised of those students who graduated and
completed a degree within eight semesters (Completers) and
those students who did not complete a degree within eight
semesters and extended their enrollment (Extenders).
Subjects who were Completers and those who were Extenders
were identified from self-report information contained in
Section VI of the questionnaire (see Appendix A). Students
who self-reported being enrolled in a CO-OP program were excluded from further analyses in that CO-OP was an announced five-year program.

Based upon self-report information from the questionnaire, 81 Extenders and 211 Completers were identified.

Gender Differences

Significant gender differences were noted between Extenders and Completers. The Chi-Square Test of Independence revealed a low probability (Chi-Square = 9.75, df = 1, p < .01) that gender was independent between the two groups. There were 28 (34.6%) female Extenders as compared to 116 (55.0%) female Completers. There were 53 (65.4%) male Extenders as compared to 95 (45.0%) male Completers. Therefore, a higher percentage of Extenders were male and a higher percentage of Completers were female.

Differences in Ethnicity

Significant differences in ethnicity between Extenders and Completers were found using the Chi-Square Test of Independence (Chi-Square = 12.72, df = 1, p < .01). Minorities included 12 (14.8%) Extenders as compared to 7 (3.3%) Completers. There were 69 (85.2%) white Extenders compared to 204 (96.7%) whites who were Completers. A higher percentage of minorities who responded to the questionnaire were Extenders.
Differences in College

Table 1 indicates the comparison of college affiliation between Extenders and Completers. The Chi-Square Test of Independence, applied to college affiliation between Extenders and Completers, was found to be significant for affiliation with the College of Engineering.

Scholastic Aptitude Test Score Comparisons

No statistical differences were noted for either the verbal \( t = -1.77, \text{ df} = 157, p > .05 \) or math \( t = 0.49, \text{ df} = 149, p > .05 \) SAT scores between the two groups. The Extenders had a mean verbal score of 511 compared to a mean score of 528 for Completers. The mean math score for Extenders was 605 compared to the mean score of 599 for Completers.

Differences in the Pattern of Developing a Major

A summary of the distribution concerning the pattern of developing of a major can be found in Table 2. Items from the Table correspond to Section IV of the questionnaire (see Appendix A). A higher percentage of Extenders started their post-secondary experience undecided compared to Completers. A higher percentage of Completers started their collegiate experience with a major and remained with that same major during their eight semesters. These differences were statistically significant.
<table>
<thead>
<tr>
<th>College Affiliation</th>
<th>Extenders</th>
<th></th>
<th>Completers</th>
<th></th>
<th>Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>(%)</td>
<td>N</td>
<td>(%)</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>4</td>
<td>(22.2)</td>
<td>14</td>
<td>(77.8)</td>
<td>.29</td>
</tr>
<tr>
<td>Business</td>
<td>21</td>
<td>(30.9)</td>
<td>47</td>
<td>(69.1)</td>
<td>.43</td>
</tr>
<tr>
<td>Education</td>
<td>3</td>
<td>(17.6)</td>
<td>14</td>
<td>(82.4)</td>
<td>.92</td>
</tr>
<tr>
<td>Engineering</td>
<td>27</td>
<td>(42.2)</td>
<td>37</td>
<td>(57.8)</td>
<td>8.54 *</td>
</tr>
<tr>
<td>Human Resources</td>
<td>2</td>
<td>(14.3)</td>
<td>12</td>
<td>(85.7)</td>
<td>1.31</td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>24</td>
<td>(21.6)</td>
<td>87</td>
<td>(78.4)</td>
<td>3.34</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>81</strong></td>
<td></td>
<td><strong>211</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the .01 level with 1 degree of freedom.
<table>
<thead>
<tr>
<th>Items</th>
<th>Extenders</th>
<th>Completers</th>
<th>Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>I started undecided but eventually developed a major.</td>
<td>15 (18.5)</td>
<td>20 (9.5)</td>
<td>4.53 *</td>
</tr>
<tr>
<td>I started with a major and remained in that same major.</td>
<td>33 (40.7)</td>
<td>118 (55.9)</td>
<td>5.40 *</td>
</tr>
<tr>
<td>I started with one major but changed to another.</td>
<td>25 (30.9)</td>
<td>62 (29.4)</td>
<td>.06</td>
</tr>
<tr>
<td>I have changed my major two or more times.</td>
<td>8 (9.9)</td>
<td>11 (5.2)</td>
<td>2.09</td>
</tr>
<tr>
<td>Total</td>
<td>81</td>
<td>211</td>
<td>NA</td>
</tr>
</tbody>
</table>

* Significant at the .05 level using the Chi-Square Test of Independence (df = 1).
Summer School Attendance
The summer school attendance rates between Extenders and Completers were found not to differ significantly (Chi-Square = 1.16, df = 1, p > .05). Reports of attending one or more summer sessions were found for 46 (56.8%) Extenders as compared to 105 (49.8%) Completers.

Differences in Average Faculty Contact Outside Class
Significant statistical differences exist between Extenders and Completers associated with self-reports of average per week outside class faculty contact. Table 3 presents summary data taken from information provided by respondents to Section II of the questionnaire (see Appendix A). Extenders reported higher percentages of no outside class contact with faculty and higher percentages of low contact while Completers reported higher moderate and high levels outside class contact with faculty.

Perceptual Scale Response Comparisons

Several scales were employed to measure various perceptual aspects of the specific environmental press, faculty interaction, and faculty characteristics as outlined in Chapter Three. What follows is a comparison of the responses between Extenders and Completers for each scale.
Table 3

Number of Average Weekly Outside Class Faculty Contacts

Between Extenders and Completers

<table>
<thead>
<tr>
<th>Contact Level</th>
<th>Extenders</th>
<th>Completers</th>
<th>Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N  (%)</td>
<td>N  (%)</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>14  (17.9)</td>
<td>19  (9.3)</td>
<td>-</td>
</tr>
<tr>
<td>Low (1-3)</td>
<td>52  (66.7)</td>
<td>123 (60.3)</td>
<td>-</td>
</tr>
<tr>
<td>Moderate (4-7)</td>
<td>8   (10.3)</td>
<td>46  (22.5)</td>
<td>-</td>
</tr>
<tr>
<td>High &gt; 8</td>
<td>4   (5.1)</td>
<td>16 (7.8)</td>
<td>-</td>
</tr>
<tr>
<td>Missing</td>
<td>3   -</td>
<td>7  -</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>81  -</td>
<td>211  -</td>
<td>9.00 *</td>
</tr>
</tbody>
</table>

* Significant at the .05 level with 3 degrees of freedom.
Academic Competition Scale

One measure of institutional environmental press was made using the Academic or Intellectual Competition Scale (Astin & Panos, 1969; Pascarella, 1984). The scale included five yes or no items as follows: (a) students are under pressure to get high grades; (b) students are very bright academically; (c) competition is keen among most students for high grades; (d) course work is definitely more theoretical than practical; and (e) classes are usually small. Subjects were asked to respond to these questions, once for their major and once for the university overall. The scale can be found embedded in Section V of the Questionnaire (see Appendix A).

No statistical differences were found between the responses of the Extended Enrollments and the Completers relative to their major. The alpha reliability for this scale, as applied to the major, was 0.26.

This scale, as applied to the overall university, was found to show significant differences between the responses of Extenders and Completers to the statement that university-wide students are under pressure to get high grades (Chi-Square = 6.36, df = 1, p < .05). This pressure for grades was reported by 58 (71.6%) Extenders compared to 117 (55.5%) Completers. No other significant differences
were noted. The alpha reliability for this scale, as applied to the overall university was 0.31.

Embedded in Table 4 is the percent of affirmative responses applied to the major and university-wide for this scale. The combined responses of all subjects serve to provide a student perceptual measure of the institutional environment, useful as a description of the campus environment.

Impersonalism and Inaccessible Faculty Scale

A second measure of institutional environmental press was made using the Impersonalism and Inaccessible Faculty Scale (Astin & Panos, 1969; Pascarella, 1984). This scale consisted of two yes or no response items as follows: (a) students are treated like numbers in a book; and (b) there is little or no contact with faculty. Subjects were asked to respond to each statement twice, once for their major and once for the university overall. Section V of the questionnaire (see Appendix A) includes this scale.

There were no statistical differences noted between Extenders and Completers relative to their responses on this scale. An alpha reliability of 0.63 for the scale, as applied to the major, was determined. The scale, as applied to the university overall, resulted in no significant differences between Extenders and Completers and had an alpha reliability of 0.59.
Table 4

Number of Affirmative Responses to the Academic Competition and Impersonalism and Inaccessible Faculty Scales

<table>
<thead>
<tr>
<th>Items</th>
<th>In Major</th>
<th>University-wide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Students are under pressure to get high grades.</td>
<td>202</td>
<td>175</td>
</tr>
<tr>
<td>Students are very bright academically.</td>
<td>254</td>
<td>199</td>
</tr>
<tr>
<td>Competition is keen among most students for high grades.</td>
<td>200</td>
<td>152</td>
</tr>
<tr>
<td>Course work is definitely more theoretical than practical.</td>
<td>147</td>
<td>192</td>
</tr>
<tr>
<td>Classes are usually small.</td>
<td>167</td>
<td>16</td>
</tr>
<tr>
<td>Students are treated like numbers in a book.</td>
<td>49</td>
<td>213</td>
</tr>
<tr>
<td>There is little or no contact with faculty.</td>
<td>66</td>
<td>185</td>
</tr>
</tbody>
</table>
Characteristics of Faculty Scale

This scale was used as a measure of student perceptions of environmental press as related to faculty (Hearn 1987). Subjects were asked to respond twice, once for major faculty and once for non-major faculty.

Table 5 presents the data related to an Independent t-Test of each scale item between Extenders and Completers associated with the characteristics of major faculty. Significant differences were found on two scale items between Extenders and Completers. Completers reported that major faculty engaged students in stimulating discussions and emphasized variety and new approaches in student work more frequently than did Extenders. When all items were combined to formulate the complete scale for major faculty there was a significant difference \( t = -2.92, \text{df} = 165, \ p = < .05 \) between the two groups with the mean scores higher for Completers (17.47) than for Extenders (17.15). The alpha reliability was 0.74 for this scale as applied to major faculty.

Data related to an Independent t-Test of each scale item as applied to non-major faculty is summarized in Table 6. The scale item concerning variety and new approaches in student work was found to differ significantly. Significant differences were found between the mean scale scores for Extenders (14.68) and Completers (14.57) when all items were
Table 5

Means and Standard Deviations for Responses to the Characteristics of Faculty Scale as Applied to Major Faculty

<table>
<thead>
<tr>
<th>Scale Item</th>
<th>Extenders</th>
<th>Completers</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Helped and supported students</td>
<td>3.29</td>
<td>.799</td>
<td>3.39</td>
</tr>
<tr>
<td>Provided opportunities for social interaction with other students</td>
<td>2.38</td>
<td>.905</td>
<td>2.43</td>
</tr>
<tr>
<td>Engaged in stimulating discussions</td>
<td>2.48</td>
<td>.842</td>
<td>2.78</td>
</tr>
<tr>
<td>Clearly explained the requirements, rules, and regulations</td>
<td>3.29</td>
<td>.679</td>
<td>3.40</td>
</tr>
<tr>
<td>Encouraged students to become involved in their work</td>
<td>3.13</td>
<td>.817</td>
<td>3.21</td>
</tr>
<tr>
<td>Emphasized variety and new approaches in student work</td>
<td>2.40</td>
<td>.821</td>
<td>2.69</td>
</tr>
</tbody>
</table>

* Individual scale items significant at the .01 level using the two-tail t-Test of Independent Samples.

Scoring (hardly ever = 1, occasionally = 2, frequently = 3, almost always = 4).
Table 6

Means and Standard Deviations for Responses to the
Characteristics of Faculty Scale as Applied to Non-Major
Faculty

<table>
<thead>
<tr>
<th>Scale Item</th>
<th>Extenders Mean</th>
<th>Extenders SD</th>
<th>Completers Mean</th>
<th>Completers SD</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helped and supported students</td>
<td>2.76</td>
<td>.746</td>
<td>2.70</td>
<td>.766</td>
<td>0.81</td>
</tr>
<tr>
<td>Provided opportunities for social interaction with other students</td>
<td>1.86</td>
<td>.725</td>
<td>1.86</td>
<td>.765</td>
<td>0.06</td>
</tr>
<tr>
<td>Engaged in stimulating discussions</td>
<td>2.28</td>
<td>.715</td>
<td>2.42</td>
<td>.696</td>
<td>-1.55</td>
</tr>
<tr>
<td>Clearly explained the requirements, rules, and regulations</td>
<td>3.03</td>
<td>.842</td>
<td>3.20</td>
<td>.771</td>
<td>-1.66</td>
</tr>
<tr>
<td>Encouraged students to become involved in their work</td>
<td>2.58</td>
<td>.792</td>
<td>2.58</td>
<td>.856</td>
<td>-0.06</td>
</tr>
<tr>
<td>Emphasized variety and new approaches in student work</td>
<td>2.03</td>
<td>.675</td>
<td>2.21</td>
<td>.710</td>
<td>-2.06+</td>
</tr>
</tbody>
</table>

* Individual scale items significant at the .01 level using the two-tail t-Test of Independent Samples.

Scoring (hardly ever = 1, occasionally = 2, frequently = 3, almost always = 4.)

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combined to formulate a complete scale for non-major faculty 
($t = 2.49$, $df = 159$, $p < .05$). The alpha reliability of 
0.70 was determined for this scale when used with non-major 
faculty.

**Interaction with Faculty Scale**

Pascarella and Terenzini (1980) developed this scale to 
measure the nonclassroom interactions between faculty and 
students. Subjects were asked to respond twice to five 
statements, once for major faculty and once for non-major 
faculty. Appendix A contains this scale embedded in the 
first five items of Section III.

Regarding major faculty, two individual scale items 
were found to be significantly different and Table 7 
presents a summary of the response data. Extenders reported 
less agreement that nonclassroom contact with major faculty 
had a positive influence on career goals and aspirations 
than did Completers. Extenders also reported that the 
development of a close personal relationship with at least 
one major faculty member occurred less often as compared to 
Completers. All items combined into a scale indicated 
significant differences ($t = -2.81$, $df = 132$, $p < .01$) 
between the mean scores of Extenders (15.85) and Completers 
(17.60). The alpha reliability of 0.82 was determined for 
this scale.

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Table 7

Means and Standard Deviations for Interaction with Faculty

Scale as Applied to Major Faculty

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Extenders</th>
<th></th>
<th>Completers</th>
<th></th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>My nonclassroom interactions with faculty have had a positive influence on</td>
<td>3.46</td>
<td>1.07</td>
<td>3.68</td>
<td>1.11</td>
<td>-1.59</td>
</tr>
<tr>
<td>my personal growth.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My nonclassroom contacts with faculty have had a positive influence on my</td>
<td>3.56</td>
<td>1.10</td>
<td>3.82</td>
<td>1.02</td>
<td>-1.92</td>
</tr>
<tr>
<td>intellectual growth.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My nonclassroom contact with faculty have had a positive influence on my</td>
<td>3.15</td>
<td>1.30</td>
<td>3.68</td>
<td>1.15</td>
<td>-3.23*</td>
</tr>
<tr>
<td>career goals and aspirations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have developed a close personal relationship with at least one faculty</td>
<td>2.74</td>
<td>1.52</td>
<td>3.36</td>
<td>1.42</td>
<td>-3.18*</td>
</tr>
<tr>
<td>member.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am satisfied with the opportunities to meet and interact informally with</td>
<td>2.95</td>
<td>1.34</td>
<td>3.09</td>
<td>1.30</td>
<td>-0.83</td>
</tr>
<tr>
<td>faculty.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Scale item significant at the .01 level

Scoring equals (strongly disagree = 1, disagree = 2, no opinion = 3, agree = 4, strongly agree = 5).
Table 8 reports the summary data for each item of the Interaction with Faculty Scale applied to non-major faculty. Extenders reported significantly less agreement with the statement that they have developed a close personal relationship with at least one non-major faculty member than did Completers. No other significant differences were found. When items were combined into a complete scale, no statistical differences were noted between the two groups ($t = -1.32$, $df = 134$, $p > .05$). The alpha reliability of 0.75 was determined for this scale.

Faculty Concern for Teaching and Student Development Scale

The first three items of this scale were coded in reverse order, consistent with procedures used by Pascarella and Terenzini (1980), due to the reported negative factor loadings during the original scale development. This scale is embedded as part of Section III of the questionnaire (see Appendix A).

Table 9 contains a summary of the Independent t-Test data for this scale, comparing Extenders and Completers relative to major faculty. As Table 9 indicates, Completers, based upon their contact with faculty, have significantly more disagreement with the statement that few major faculty are generally interested in students. Completers also have significantly more disagreement with the statement that few major faculty are generally
Table 8

Means and Standard Deviations for Interaction with Faculty

Scale as Applied to Non-Major Faculty

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Extenders</th>
<th></th>
<th>Completers</th>
<th></th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>My nonclassroom interactions with faculty have had a positive influence on</td>
<td>3.02</td>
<td>0.96</td>
<td>3.05</td>
<td>1.00</td>
<td>-0.22</td>
</tr>
<tr>
<td>my personal growth.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My nonclassroom contacts with faculty have had a positive influence on my</td>
<td>3.09</td>
<td>0.93</td>
<td>3.25</td>
<td>0.89</td>
<td>-1.34</td>
</tr>
<tr>
<td>intellectual growth.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My nonclassroom contact with faculty have had a positive influence on my</td>
<td>2.74</td>
<td>1.09</td>
<td>2.91</td>
<td>0.92</td>
<td>-1.23</td>
</tr>
<tr>
<td>career goals and aspirations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have developed a close personal relationship with at least one faculty</td>
<td>2.14</td>
<td>1.26</td>
<td>2.49</td>
<td>1.25</td>
<td>-2.17*</td>
</tr>
<tr>
<td>member.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am satisfied with the opportunities to meet and interact informally with</td>
<td>2.60</td>
<td>1.24</td>
<td>2.57</td>
<td>1.09</td>
<td>0.23</td>
</tr>
<tr>
<td>faculty.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the .05 level

Scoring equals (strongly disagree = 1, disagree = 2, no opinion = 3, agree = 4, strongly agree = 5).
Table 9

Means and Standard Deviations of Individual Responses to the Faculty Concern for Teaching as Applied to Major Faculty

<table>
<thead>
<tr>
<th>Scale Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extenders</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>--------------</td>
</tr>
<tr>
<td>Few faculty I have had contact with are generally interested in students.</td>
</tr>
<tr>
<td>Few of the faculty I have had contact with are generally outstanding teachers.</td>
</tr>
<tr>
<td>Few of the faculty I have had contact with are willing to spend time out-side class to discuss issues important to students.</td>
</tr>
</tbody>
</table>

* Significant at the .05 level
+ Significant at the .01 level

Item scores equal (strongly agree = 1, agree = 2, no opinion = 3, disagree = 4, and strongly disagree = 5).
outstanding teachers. Table 10 indicates that agreement that most major faculty, with whom they have had contact, are interested in helping students grow in more than just academic areas is significantly higher for Completers than Extenders. When all items from Tables 9 and 10 form a scale, a significant difference in mean scale scores between Extenders (16.84) and Completers (18.37) was noted ($t = -2.88$, $df = 154$, $p < .01$). The alpha reliability of 0.77 was found for this scale.

Only one statistical difference was found between Extenders and Completers when this scale was applied to non-major faculty. Completers reported more disagreement, based upon their contact with non-major faculty, with the statement that few non-major faculty are generally outstanding teachers. Table 11 and Table 12 show the data related to the Independent T-Test for this scale as applied to non-major faculty. Significant differences in mean scale scores appeared between Extenders (15.70) and Completers (16.95) when all items were used to formulate a complete scale ($t = -2.57$, $df = 154$, $p < .05$). When applied to non-major faculty the alpha reliability of this scale was found to be 0.74.
Table 10

Means and Standard Deviations for Responses to Individual Items of the Faculty Concern for Student Development Scale Applied to Major Faculty

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Extenders Mean</th>
<th>Extenders SD</th>
<th>Completers Mean</th>
<th>Completers SD</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Faculty I have had contact with are interested in helping students grow in more than just academic areas.</td>
<td>3.19</td>
<td>1.17</td>
<td>3.57</td>
<td>1.12</td>
<td>-2.53*</td>
</tr>
<tr>
<td>Most of the faculty that I have had contact with are genuinely interested in teaching.</td>
<td>3.79</td>
<td>1.01</td>
<td>3.89</td>
<td>1.04</td>
<td>-0.76</td>
</tr>
</tbody>
</table>

* Significant at the .05 level

Item scores equal strongly disagree = 1, disagree = 2, no opinion = 3, agree = 4, and strongly agree = 5.
Table 11
Means and Standard Deviations of Item Responses to the
Faculty Concern for Teaching Scale Applied to Non-Major
Faculty

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Extenders</th>
<th>Completers</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Few faculty I have had contact with are generally interested in students.</td>
<td>3.25</td>
<td>1.16</td>
<td>3.45</td>
</tr>
<tr>
<td>Few of the faculty I have had contact with are generally outstanding teachers.</td>
<td>2.80</td>
<td>1.12</td>
<td>3.22</td>
</tr>
<tr>
<td>Few of the faculty I have had contact with are willing to spend time out-side class to discuss issues important to students.</td>
<td>3.26</td>
<td>1.10</td>
<td>3.53</td>
</tr>
</tbody>
</table>

+ Significant at the .01 level

Item scores equal (strongly agree = 1, agree = 2, no opinion = 3, disagree = 4, and strongly disagree = 5).
Table 12

Means and Standard Deviations for Responses to Individual Items of the Faculty Concern for Student Development Scale Applied to Non-Major Faculty

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Extenders</th>
<th>Completers</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Most Faculty I have had contact with are interested in helping students grow in more than just academic areas.</td>
<td>2.95</td>
<td>1.10</td>
<td>3.57</td>
</tr>
<tr>
<td>Most of the faculty that I have had contact with are genuinely interested in teaching.</td>
<td>3.44</td>
<td>1.07</td>
<td>3.56</td>
</tr>
</tbody>
</table>

Item scores equal strongly disagree = 1, disagree = 2, no opinion = 3, agree = 4, and strongly agree = 5.
Extenders and Completers Academic Achievement

The grade point average was the measure used to determine the academic achievement level of the subjects of this study. The mean grade point average for Extenders was 2.54 (SD = .39). Completers had a mean grade point average of 3.00 (SD = .51). The results of an Independent t-Test indicate a significant difference ($t = -8.32$, df = 190, $p < .01$).

Correlation Between Significant Variables

Table 13 presents the correlation coefficients of the variables found to have significant differences between Extenders and Completers based upon Chi-Square and t-Test procedures. Two major reasons that the magnitude of the coefficients were small for many variables are (a) some of the variables were categorical yes or no items with little variability which tends to restrict the range of the coefficient and (b) some of the variables were continuous measures that, when correlated with measures which suffer a restriction in range, tend to affect the size of the correlation (Hair, Anderson & Tatham, 1987). Several of the significant variables had correlation coefficients that were found to be significant.
Table 13

Correlation Coefficients for Significant Variables

<table>
<thead>
<tr>
<th>Item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
<td>-</td>
<td>.05</td>
<td>.13</td>
<td>.05</td>
<td>-.32</td>
<td>-.26</td>
<td>-.14</td>
<td>.00</td>
<td>.02</td>
<td>.28</td>
<td>-.08</td>
<td></td>
</tr>
<tr>
<td>2. Started undecided about a major</td>
<td>-</td>
<td>-.37</td>
<td>-.03</td>
<td>.10</td>
<td>.00</td>
<td>-.04</td>
<td>-.38</td>
<td>.14</td>
<td>-.07</td>
<td>-.10</td>
<td>-.03</td>
<td></td>
</tr>
<tr>
<td>3. Started in same major</td>
<td>-</td>
<td>.04</td>
<td>-.13</td>
<td>-.14</td>
<td>.30</td>
<td>.01</td>
<td>.03</td>
<td>.00</td>
<td>.36</td>
<td>.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Faculty contact</td>
<td>-</td>
<td>.01</td>
<td>.17</td>
<td>.01</td>
<td>.56</td>
<td>.31</td>
<td>.11</td>
<td>-.10</td>
<td>.14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Pressure for grades university-wide</td>
<td>-</td>
<td>-.07</td>
<td>.04</td>
<td>-.00</td>
<td>-.05</td>
<td>-.04</td>
<td>-.04</td>
<td>.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Char. of Faculty Scale (major)</td>
<td>-</td>
<td>-.46</td>
<td>.20</td>
<td>.12</td>
<td>-.04</td>
<td>-.54</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Char. of Faculty Scale (non-major)</td>
<td>-</td>
<td>-.09</td>
<td>-.14</td>
<td>-.04</td>
<td>.52</td>
<td>.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Faculty Involvement Scale (major)</td>
<td>-</td>
<td>.49</td>
<td>.21</td>
<td>-.13</td>
<td>.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Faculty Concern Scale (major fac.)</td>
<td>-</td>
<td>.63</td>
<td>-.09</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Faculty Concern Scale (non-major fac.)</td>
<td>-</td>
<td>.01</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. GPA</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant coefficients (p < .01) are underlined and in bold type.
Reports of Goals and Intentions

Section VII of the questionnaire (see Appendix D) asked respondents to report their post-graduation plan or situation. This served as a measure of goals and intentions for the Extended Enrollments and as a measure of the actual situation for Completers.

**Extenders' Intentions**

Being undecided about what to do following graduation was reported by 11 (13.6%) Extenders. Entering the job market following graduation is the plan for 56 (69.1%) Extenders and 4 (4.9%) report already having a job. Entering graduate or professional school following graduation was the reported plan for 10 (12.3%) of the Extenders.

**Completers' Situation**

Indecision about what to do was reported by 15 (7.1%) of the Completers. Information from 32 (15.2%) of the Completers indicate that entering the job market is their plan. Already having a job was reported by 118 (55.9%) Completers. Graduate or professional school enrollment was indicated by 46 (21.8%), with three Completers indicating both having a job and attending graduate school.
Discriminant Analysis Procedure

Significant differences were found between Extenders and Completers associated with several demographic variables and perceptual scales. These differences made it appropriate to proceed with a discriminant analysis to determine if student perceptions of the influences of faculty affect the enrollment pattern between Extenders and Completers.

The discriminant analysis procedure allows the use of many "discriminating variables" to statistically distinguish between two groups that have a categorical dependent variable (Hair, Anderson, & Tatham, 1987; Norusis, 1990). The statistical critical value was set at .05 for all discriminant analyses. The statistically significant variables resulting from this analysis are considered to be most important in distinguishing between the groups which constitute the dependent variable. If measures of student perceptions of the influence of faculty were found among the statistically significant discriminating independent variables, it would indicate that student perceptions of the influence of faculty affect the length of student enrollment.
An adjustment was made to eliminate the variable "started undecided but eventually developed a major" and to merge it with the two "changed major" categories. This decision was based upon the high significant negative correlation coefficient (-.37) between the "undecided" and "started and remained in the same major" categories (Table 13). Those subjects who started and remained in the same major received a code of one and those subjects who started undecided or changed majors received a code of zero. The Chi-Square Test of Independence revealed significant differences between Extenders and Completers related to starting and remaining in the same major and having some form of mobility in the pattern of developing a major after entering the university (Chi-Square = 5.40, df = 1, p < .05). Table 14 indicates the pattern of developing a major by college affiliation. The pattern of developing a major for Extenders by college affiliation is presented in Table 15 and the pattern of developing a major for Completers by college affiliation is presented in Table 16. There were 118 Completers (55.9%) compared to 33 Extenders (40.7%) who reported starting and remaining in the same major. There were 48 Extenders (59.3%) compared to 93 Completers (44.1%) who responded that they either started undecided about a major or changed their major during their university experience. Significant correlations were found.
Table 14

Numerical Pattern of Developing A Major by College

Affiliation

<table>
<thead>
<tr>
<th>College</th>
<th>Major Mobility</th>
<th>Same Major</th>
<th>Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n  (%)</td>
<td>n  (%)</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>4  (22.2)</td>
<td>14  (77.8)</td>
<td>-</td>
</tr>
<tr>
<td>Business</td>
<td>43  (63.2)</td>
<td>25  (36.8)</td>
<td>-</td>
</tr>
<tr>
<td>Education</td>
<td>10  (58.8)</td>
<td>7  (41.2)</td>
<td>-</td>
</tr>
<tr>
<td>Engineering</td>
<td>8  (12.5)</td>
<td>56  (87.5)</td>
<td>-</td>
</tr>
<tr>
<td>Human Resources</td>
<td>9  (64.3)</td>
<td>5  (37.7)</td>
<td>-</td>
</tr>
<tr>
<td>Arts &amp; Sciences</td>
<td>67  (60.4)</td>
<td>44  (39.6)</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>141  (48.3)</td>
<td>151  (51.7)</td>
<td>52.48 +</td>
</tr>
</tbody>
</table>

+ Significant at the .01 level
Table 15

Extenders Numerical Pattern of Developing A Major

<table>
<thead>
<tr>
<th>College</th>
<th>Major Mobility</th>
<th>Same Major</th>
<th>Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Agriculture</td>
<td>3</td>
<td>(75.0)</td>
<td>1</td>
</tr>
<tr>
<td>Business</td>
<td>17</td>
<td>(81.0)</td>
<td>4</td>
</tr>
<tr>
<td>Education</td>
<td>3</td>
<td>(100.0)</td>
<td>-</td>
</tr>
<tr>
<td>Engineering</td>
<td>4</td>
<td>(14.8)</td>
<td>23</td>
</tr>
<tr>
<td>Human Resources</td>
<td>2</td>
<td>(100.0)</td>
<td>-</td>
</tr>
<tr>
<td>Arts &amp; Sciences</td>
<td>19</td>
<td>(79.2)</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td></td>
<td>33</td>
</tr>
</tbody>
</table>

+ Significant at the .01 level
* Significant at the .05 level
Table 16

Completers Numerical Pattern of Developing A Major

<table>
<thead>
<tr>
<th>College</th>
<th>Major Mobility</th>
<th>Same Major</th>
<th>Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1</td>
<td>(7.1)</td>
<td>13</td>
</tr>
<tr>
<td>Business</td>
<td>26</td>
<td>(55.3)</td>
<td>21</td>
</tr>
<tr>
<td>Education</td>
<td>7</td>
<td>(50.0)</td>
<td>7</td>
</tr>
<tr>
<td>Engineering</td>
<td>4</td>
<td>(10.8)</td>
<td>33</td>
</tr>
<tr>
<td>Human Resources</td>
<td>7</td>
<td>(58.3)</td>
<td>5</td>
</tr>
<tr>
<td>Arts &amp; Sciences</td>
<td>48</td>
<td>(55.2)</td>
<td>39</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td></td>
<td>33</td>
</tr>
</tbody>
</table>

+ Significant at the .01 level with 1 degree of freedom
between the newly transformed variable, pattern of developing a major, and affiliation with the College of Business \((r = -0.17)\), the College of Engineering \((r = 0.36)\) and the College of Arts and Sciences \((r = -0.16)\).

Six colleges were included in this study. Each college was dummy coded with a zero indicating the absence of membership and a one indicating membership. To avoid linear dependency where knowledge of college membership for five colleges by necessity indicates the membership of the sixth, one college was chosen to serve as a constant \((\text{Kerlinger, 1973; Pedhazur, 1982})\). Affiliation with the College of Business was selected to serve as the constant because of a lack of statistical difference between the two groups composing the dependent variable and the large number of subjects with membership in the college \((\text{Table 1})\).

The College of Arts and Sciences was found to have significant differences for Extenders \((\text{Chi-Square} = 5.60, \ df = 1, \ p < 0.05)\) and Completers \((\text{Chi-Square} = 7.40, \ df = 1, \ p < 0.01)\) based upon the independent variable starting and remaining in the same major. Subjects affiliated with the College of Arts and Sciences who reported starting and remaining in the same major included 39 Completers \((44.8\%)\) and 5 Extenders \((20.8\%)\). Those who reported some form of major mobility \((\text{starting undecided or changed majors})\)
included 48 Completers (55.2%) and 19 Extenders (79.2%). A
decision was made to not allow the College of Arts and
Sciences to be a constant in the analysis for the above
reason.

**Significant Discriminating Variables**

A stepwise procedure based upon maximizing Mahalanobis'
distance between the two closest groups was used in the
discriminant analysis (Hair, Anderson, & Tatham, 1987;
Norusis, 1990). A summary of the significant discriminating
variables in the order of step-wise entrance (a measure of
variable importance) into the discriminant function is
presented in Table 17. None of the measures related to
student perceptions of faculty were among the discriminating
variables. Table 18 shows the means and standard deviations
for the significant discriminant function variables between
Extenders and Completers.

The variables of grade point average, perception of
students being under pressure to get high grades university-
wide, membership in the College of Arts and Sciences,
starting and remaining in the same major, and membership in
the College of Engineering resulted in a discriminant
function with an eigenvalue of .45 and a canonical
correlation of .56. The square of the canonical correlation
equals .31 and represents the proportion of variance (30.9%)attributed to differences between Extenders and Completers,
Table 17

**Significant Discriminant Variables in Order of Entrance Into the Discriminant Function**

<table>
<thead>
<tr>
<th>Significant Variables</th>
<th>Wilks Lambda</th>
<th>Minimum D Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Point Average</td>
<td>.805</td>
<td>1.16</td>
</tr>
<tr>
<td>Students under pressure to get high grades (univ-wide)</td>
<td>.770</td>
<td>1.42</td>
</tr>
<tr>
<td>College of Arts and Sciences</td>
<td>.745</td>
<td>1.64</td>
</tr>
<tr>
<td>Starting and remaining in the same major</td>
<td>.717</td>
<td>1.89</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>.691</td>
<td>2.14</td>
</tr>
</tbody>
</table>

Wilks Lambda and Minimum D Square both significant at the .01 level.
Table 18

Results of the Computation of Means and Standard Deviations

For Significant Variables In The Discriminant Function

<table>
<thead>
<tr>
<th>Significant Variables</th>
<th>Extenders</th>
<th></th>
<th>Completers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Grade Point Average</td>
<td>2.49</td>
<td>0.40</td>
<td>3.00</td>
<td>0.49</td>
</tr>
<tr>
<td>Students under pressure to get high grades</td>
<td>0.73</td>
<td>0.45</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td>(In Major)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Arts and Sciences</td>
<td>0.20</td>
<td>0.41</td>
<td>0.40</td>
<td>0.49</td>
</tr>
<tr>
<td>Starting and remaining in the same major</td>
<td>0.41</td>
<td>0.50</td>
<td>0.58</td>
<td>0.50</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>0.34</td>
<td>0.48</td>
<td>0.16</td>
<td>0.37</td>
</tr>
</tbody>
</table>

Grade point average measured on the interval scale.

Other variables are categorical yes or no items with a yes response equal to one.
given the measures used in this study. The function was found to be significant \( (p < .01) \) with a Wilks' Lambda of .69 and a Chi-Square of 60.39 having 5 degrees of freedom.

Table 19 contains the standardized discriminant function coefficients. Table 20 presents the pooled-within-groups correlations between significant discriminating variables and the canonical discriminate function. The group centroid for Extenders was -1.035 and a group centroid of .426 was calculated for Completers.

A test of equality of group covariance matrices using Box's M (Norusis, 1990) found that the group covariance had a low probability \( (p < .05) \) of being equal. The Box's M was equal to 26.22 with an approximate F value of 1.68 having 15 and 35576.3 degrees of freedom. This is a violation of one of the assumptions of the discriminant analysis procedure.

Appendix G contains the means and standard deviations for the remaining variables used in this study. Appendix H indicates the pooled-within-groups correlations between the remaining variables.

Profiles of Extenders and Completers

The standardized canonical discriminant function coefficients (see Table 18) were used with the group means (see Table 17) to develop a profile of Extenders and Completers. Extenders were more likely to be enrolled in
Table 19

**Standardized Canonical Discriminant Function Coefficients**

<table>
<thead>
<tr>
<th>Significant Variables</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Point average</td>
<td>.76</td>
</tr>
<tr>
<td>Students under pressure to get high grades (univ-wide)</td>
<td>-.32</td>
</tr>
<tr>
<td>College of Arts and Sciences</td>
<td>.30</td>
</tr>
<tr>
<td>Starting and remaining with the same major</td>
<td>.49</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>-.39</td>
</tr>
</tbody>
</table>
Table 20

Pooled-within-groups Correlations Between Significant Discriminating Variables And The Canonical Discriminant Function

<table>
<thead>
<tr>
<th>Significant Variables</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Point Average</td>
<td>.74</td>
</tr>
<tr>
<td>Students are under pressure to get high grades (univ-wide)</td>
<td>-.34</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>-.32</td>
</tr>
<tr>
<td>College of Arts and Sciences</td>
<td>.29</td>
</tr>
<tr>
<td>Started with a major and remained with the same major</td>
<td>.23</td>
</tr>
</tbody>
</table>
the College of Engineering. They also reported feelings that students, university-wide, are under pressure to get high grades at a higher level than did Completers. Completers tend to have a higher grade point average and be more frequently enrolled in the College of Arts and Sciences. Completers also report starting and remaining with the same major more frequently than do Extenders.

Classification Results

The validity of the discriminant function was determined by randomly dividing the sample into two groups. One group served as the sample to develop the discriminant function and is referred to as the "analysis sample." The second group was used to test the discriminant function and is called the "holdout sample." The analysis group contained about 60% of the total sample and the holdout group had the remaining 40% (Hair, Anderson, & Tatham, 1987).

The classification results for the discriminant analysis are reported in Table 21. The analysis sample included 50 Extenders and 124 Completers. The percent of cases correctly classified (hit ratio) is 82.2% with a higher percentage of Completers being classified correctly than Extenders. There was a 40.0% misclassification rate for Extenders. The holdout sample had a hit ratio of 72.9%
<table>
<thead>
<tr>
<th>Groups</th>
<th>Predicted Group Membership</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Extenders</td>
<td>Completers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N (Percent)</td>
<td>N (Percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extenders (Analysis Sample)</td>
<td></td>
<td>50 (60.0%)</td>
<td>20 (40.0%)</td>
<td></td>
<td>82.2%</td>
</tr>
<tr>
<td>Completers (Analysis Sample)</td>
<td></td>
<td>124 (8.9%)</td>
<td>113 (91.1%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extenders (Holdout Sample)</td>
<td></td>
<td>31 (38.7%)</td>
<td>19 (61.3%)</td>
<td></td>
<td>72.9%</td>
</tr>
<tr>
<td>Completers (Holdout Sample)</td>
<td></td>
<td>87 (14.9%)</td>
<td>74 (85.1%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
with 85.1% of Completers being correctly classified. The holdout sample included 31 Extended Enrollments and 87 Completers. Extenders had a high misclassification rate (61.3%).

Classification accuracy relative to chance was calculated using the "proportional chance criterion" model (Hair, Anderson, & Tatham, 1987). This model was applied due to the unequal group membership of the two groups used in this study. The proportion that would be correctly classified by chance would be 58.0%. The analysis sample correctly classified 23.4% better than chance and the holdout sample was classified correctly 14.1% better than chance.

Subsequent Analysis

Two problems emerged from the discriminant analysis which required further analysis. The first problem related to the high misclassification rate of Extenders for both the analysis sample and the holdout sample. The second problem was that none of the measures of student perceptions of faculty influence were strong enough to enter the discriminant function as significant even though significant differences were noted between Extenders and Completers relative to several scales which measure perceptions.
Separate Group Covariances

An approach using separate group covariances (Norusis, 1990) was implemented and did not result in any difference with the discriminant function or significant discriminating variables. The purpose of this approach was to minimize the classification of cases into the group with the greatest dispersion by using the individual group covariances rather than the pooled-group covariances. Table 22 presents the classification results using individual group covariance for the discriminant analysis. The hit ratio was improved for the analysis sample but declined for the holdout sample as shown by comparing the classification results in Table 21 with those presented in Table 22.

The Bayesian Adjustment

Discriminant Analysis has as one of its assumptions that the group covariance matrices between the two groups be equal. The test of the equality of group covariance matrices based upon Box's M has already been reported as having a low probability of equal covariance matrices. Cooley and Lohnes (1971) state that the major consequence of the unequal covariance matrices is that cases are more likely to be classified into the group with the greatest overall generalized variance as measured by the determinant of the group covariance matrix. A second consequence applicable to this study is that when groups are of grossly different
### Table 22

**Discriminant Analysis Classification Results Using Individual Group Covariance**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Predicted Group Membership</th>
<th></th>
<th></th>
<th>Hit Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extenders</td>
<td>Completers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number (Percent)</td>
<td>Number (Percent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extenders (Analysis Sample)</td>
<td>50</td>
<td>33 (66.0%)</td>
<td>17 (34.0%)</td>
<td></td>
</tr>
<tr>
<td>Completers (Analysis Sample)</td>
<td>124</td>
<td>12 (9.7%)</td>
<td>112 (90.3%)</td>
<td>83.3%</td>
</tr>
<tr>
<td>Extenders (Holdout Sample)</td>
<td>31</td>
<td>13 (41.9%)</td>
<td>18 (58.1%)</td>
<td></td>
</tr>
<tr>
<td>Completers (Holdout Sample)</td>
<td>87</td>
<td>18 (20.7%)</td>
<td>69 (79.3%)</td>
<td>69.5%</td>
</tr>
</tbody>
</table>
sizes, cases are more likely to be classified into the largest group.

Cooley and Lohnes (1971) suggest that when the cost of misclassification between the groups is very high and when the groups are of grossly unequal sizes, a Bayesian adjustment is often desirable. Classification scores can be converted into probabilities of group membership. The alteration of the probabilities of group membership can change the classification accuracy between the groups.

It was decided that little harm could result from the misclassification of Completers as Extenders but greater harm would result from the misclassification of Extenders as Completers. The cost of misclassification of Extenders was deemed greater than the cost associated with the misclassification of Completers.

A Bayesian adjustment was made using equal probabilities of group membership. The results of this approach had no effect upon the significant discriminating variables but did substantially improve the rate of misclassification for Extenders. Table 23 indicates the classification summary for the analysis sample and the holdout sample using the Bayesian adjustment. The cost associated with this approach resulted in a lower overall hit ratio but was still greater than chance classification.
Table 23

Classification Results of Discriminant Analysis with a Bayesian Adjustment

<table>
<thead>
<tr>
<th>Groups</th>
<th>Extenders</th>
<th>Completers</th>
<th>Hit Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Number (Percent)</td>
<td>Number (Percent)</td>
</tr>
<tr>
<td>Extenders (Analysis Sample)</td>
<td>50</td>
<td>40 (80.0%)</td>
<td>10 (20.0%)</td>
</tr>
<tr>
<td>Completers (Analysis Sample)</td>
<td>124</td>
<td>29 (23.4%)</td>
<td>95 (76.6%)</td>
</tr>
<tr>
<td>Extenders (Holdout Sample)</td>
<td>31</td>
<td>20 (64.5%)</td>
<td>11 (35.5%)</td>
</tr>
<tr>
<td>Completers (Holdout Sample)</td>
<td>87</td>
<td>27 (31.0%)</td>
<td>60 (69.0%)</td>
</tr>
</tbody>
</table>
The misclassification rate of Extended Enrollments (the smallest group) was reduced.

Factor Analysis

Examination of the correlation coefficients presented in Table 13 indicates that significant correlations between the student perceptual scales of faculty influence exist. The presence of these significant correlations suggests linear dependency (multicollinearity) where information provided by some of the predictor variables become redundant with the information provided by other predictor variables (Cooley & Lohnes, 1971; Pedhazur, 1982).

Table 13 indicates that the measures of student perceptions of faculty influence had significant correlations with other demographic variables. Typically all variables would be utilized in the factoring procedure. Hair, Anderson, and Tatham (1987) have presented information suggesting that performing a factor analysis, with a mixture of metric measures and measures which are dichotomous and have a restriction in range, presents problems and tends to result in factors based upon marginal distributions rather than underlying relationships. To avoid this problem a factor analysis was performed using only the measures of student perceptions of faculty influence.

The factor analysis procedure was used to reformulate these measures into eight new scales (Hair, Anderson, &
Tatham, 1987; Kerlinger, 1973; Norusis, 1990). The summary of the eigenvalues and percent of variance that resulted from the factor analysis is reported in Table 24. The scales developed from the factor analysis are summarized in Appendix I along with their alpha reliabilities.

The results of the discriminant analysis using the new scales developed by the factor analysis procedure resulted in no difference. The hit ratio and misclassification rates were the same as those used in previous attempts.

Maximum Multicollinearity

Discriminant Analysis, as a multivariate statistical procedure, must be concerned with linear dependency among the independent variables. Otherwise, the results of the analysis may contain significant variables which serve as a proxy for other important and significant variables. The manipulation of the effects of multicollinearity on the results of a discriminant analysis can be achieved through the tolerance level selected for use in step-wise procedures.

Hair et. al. (1987, p. 75) define tolerance as "The proportion of the variation that is not explained by the variables already in the model (function)." A tolerance setting of one indicates that a predictor variable is independent of all other variables in the model and a
<table>
<thead>
<tr>
<th>Factor Scales</th>
<th>Eigenvalue</th>
<th>Percent of Variance</th>
<th>Total Percent of Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Faculty Involvement Scale</td>
<td>7.69</td>
<td>24.0</td>
<td>24.0</td>
</tr>
<tr>
<td>Faculty Concern and Performance Scale</td>
<td>3.07</td>
<td>9.6</td>
<td>33.6</td>
</tr>
<tr>
<td>Non-Major Faculty Interaction Scale</td>
<td>2.72</td>
<td>8.5</td>
<td>42.1</td>
</tr>
<tr>
<td>Non-Major Faculty Involvement Scale</td>
<td>2.17</td>
<td>6.8</td>
<td>48.9</td>
</tr>
<tr>
<td>Faculty Interest In Teaching Scale</td>
<td>1.50</td>
<td>4.7</td>
<td>53.6</td>
</tr>
<tr>
<td>Faculty Ability To Explain Requirements Scale</td>
<td>1.48</td>
<td>4.6</td>
<td>58.2</td>
</tr>
<tr>
<td>Faculty Encouragement Scale</td>
<td>1.30</td>
<td>4.1</td>
<td>62.3</td>
</tr>
<tr>
<td>Informal Interaction Opportunity Scale</td>
<td>1.06</td>
<td>3.3</td>
<td>65.6</td>
</tr>
</tbody>
</table>
tolerance setting of zero indicates that a predictor variable under consideration for inclusion in the equation is a perfect linear combination of the other variables in the model.

A low tolerance setting would therefore allow the maximum number of predictor variables to enter the model permitting a large degree of redundancy and tending to control the possibility of variables serving as a proxy for other variables. The tolerance level for all the discriminant analyses used in this study thus far was set at .01. This setting only allows variables to enter the model if one percent of their variation remains unexplained by variables already in the model.

**Minimum Multicollinearity**

A tolerance level of .99 was selected to enable evaluation of the effects of multicollinearity on the discriminant analysis results. This tolerance setting would only allow predictor variables to enter the stepwise procedure if 99 percent of their variation remains unexplained by variables already included in the model. In effect this tolerance setting establishes a large degree of control and minimizes the effects of linear dependency.

The discriminant analysis resulted in three significant discriminating variables with the tolerance setting at .99. These predictor variables in order of entrance into the
function were grade point average, agreement with the statement that university-wide students are under pressure to get high grades, and affiliation with the College of Arts and Sciences. The canonical discriminant function had an Eigenvalue of .34 and a canonical correlation of .51. and was significant (p < .01). The square of the canonical correlation indicates that 25.5% of the variance was attributable to differences between Extenders and Completers. Table 25 presents the classification results of the discriminant analysis with the tolerance setting of .99.

A nonsignificant (p > .05) Box's M was found for this discriminant analysis and equaled 8.47 with an approximate F value of 1.38 with 6 and 54668 degrees of freedom. This result, unlike previous discriminant results, was not a violation of the assumption of equality of group covariances.

**Multicollinarity Effects**

The discriminant analysis set with a tolerance of .01 resulted in a five variable model with an eigenvalue of .45 and explained 31% of the variance between Extenders and Completers. The discriminant analysis set with a tolerance of .99 resulted in a three variable model with an eigenvalue of .34 and explained 26% of the variance between Extenders and Completers. Large eigenvalues are generally associated with strong functions or models (Norusis, 1990d).
Table 25

Classification Results of Discriminant Analysis with a Bayesian Adjustment and a .99 Tolerance

<table>
<thead>
<tr>
<th>Groups</th>
<th>Predicted Group Membership</th>
<th></th>
<th>Completers</th>
<th></th>
<th>Hit Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Extenders</td>
<td>Complete</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>Number (Percent)</td>
<td>Number (Percent)</td>
<td></td>
</tr>
<tr>
<td>Extenders (Analysis Sample)</td>
<td>50</td>
<td>41</td>
<td>(82.0%)</td>
<td>9</td>
<td>(18.0%)</td>
</tr>
<tr>
<td>Completers (Analysis Sample)</td>
<td>124</td>
<td>30</td>
<td>(22.2%)</td>
<td>94</td>
<td>(75.8%)</td>
</tr>
<tr>
<td>Extenders (Holdout Sample)</td>
<td>31</td>
<td>22</td>
<td>(71.0%)</td>
<td>9</td>
<td>(29.0%)</td>
</tr>
<tr>
<td>Completers (Holdout Sample)</td>
<td>87</td>
<td>28</td>
<td>(32.2%)</td>
<td>59</td>
<td>(67.8%)</td>
</tr>
</tbody>
</table>
Another comparison between the discriminant analysis procedure using maximum and minimum multicollinearity can be determined from an examination of the classification results of Table 23 with those of Table 25. Minimum multicollinearity (tolerance set at .99) results with an improvement of the hit ratio for the hold-out sample and a slight increase in the correct classification of Extenders in both the analysis and hold-out samples.

The effects of multicollinearity in predictor variables appear to be small. This study aims to develop the best possible function or model possible to most clearly discriminant between Extenders and Completers. Therefore, the discriminant analysis with a tolerance set at .01 was deemed acceptable.

Summary of Significant Findings

Listed below is the summary of significant findings which resulted from this study.

1. A higher proportion of Extenders were male and a higher proportion of Completers were female.

2. Differences were noted between Extenders and Completers and affiliation with the College of Engineering.
3. The percentage of Extenders who reported starting their undergraduate experience as undecided about a major was higher than that reported by Completers. The percentage of Completers who reported starting their collegiate career with a major and remained with that same major was higher than that reported by Extenders.

4. A higher percentage of Extenders reported that outside class faculty contact was either "none" or "low." Completers indicated higher percentages of outside class faculty contact at the "moderate and high" levels.

5. Extenders indicated that university-wide students are under pressure to get high grades more than did Completers.

6. The Characteristics of Faculty Scale, a measure of the student perceptions concerning the helpfulness and supportiveness of faculty, yielded differences between Extenders and Completers. Mean scale scores, as applied to major faculty, indicated that Completers (17.5) viewed major faculty as being more helpful and supportive than did Extenders (17.2). Mean scale scores, as applied to non-major faculty, indicated that Extenders (14.7) viewed non-major faculty as being more helpful and supportive than did Completers (14.6).
Individual items within the scale as applied to major and non-major faculty resulted in differences between Extenders and Completers. Reports that major faculty engaged students in stimulating discussion were more frequent among Completers than among Extenders. More frequent reports that major faculty and non-major faculty emphasized variety and new approaches in student work were found among Completers than among Extenders.

7. The Interactions with Faculty Scale, a measure of the perceptions of students related to the impact of nonclassroom contact with faculty, revealed differences between Extenders and Completers. The perceptions of Completers compared to Extenders, relative to nonclassroom contact with major faculty, appeared to be developmentally more influential. Completers reported a higher mean scale score (17.6) than did Extenders (15.9) when the scale was applied to major faculty. No significant differences were noted between Extenders and Completers when the scale was applied to non-major faculty.

Analysis of individual scale items resulted in several differences between Extenders and Completers. Both Extenders and Completers tend to agree that nonclassroom contact with faculty has had a positive
influence on their career goals and aspirations; however, the level of agreement was higher for Completers than it was for Extenders. Completers generally indicated agreement with the statement that they developed a close personal relationship with at least one faculty member within their major. Extenders tended to indicate disagreement. Both Extenders and Completers indicated disagreement with the statement that they had developed a close personal relationship with at least one non-major faculty member. Extenders reported more disagreement than Completers.

8. Differences between Extenders and Completers were noted on The Faculty Concern for Teaching and Student Development Scale, a measure of student perceptions of faculty interest and performance in teaching activities and concern for student growth. The mean scale score for Completers (18.4) was higher than that of Extenders (16.8) when the scale was applied to major faculty. As applied to non-major faculty, the mean scale score for Completers (17.0) was also higher than that of Extenders (15.7). Results indicated that Completers perceived major and non-major faculty as being more able and interested in teaching and more concerned with the overall development of students than did Extenders.
Scale items individually analyzed yielded several differences between Extenders and Completers. There was small tendency toward agreement among Extenders and Completers that most major faculty, with whom they had contact, were generally interested in students. Completers indicated more agreement than did Extenders. There was a small tendency toward agreement among Extenders and Completers that most major faculty, with whom they had contact, were generally outstanding teachers. Completers indicated more agreement than did Extenders. There was a small tendency toward agreement among Extenders and Completers that, based upon their contact, most major faculty were interested in helping students grow in more than just academic areas, Completers reporting more agreement than did Extenders.

Regarding non-major faculty, Extenders tended to agree with the statement that "few of the faculty I have had contact with are generally outstanding teachers," while Completers tended to disagree.

9. The mean grade point average for Extenders (2.54) was lower than the mean grade point average for Completers (3.00).

10. One or more significant correlations were found between all but one of the significant scales and variables (Table 13). The perception variable that university-
wide students are under pressure to get high grades resulted in no significant correlation with any other significant scale or variable.

11. Student perceptions of the influence of faculty had no significant effect in explaining the differences between Extenders and Completers.

12. The discriminant analysis resulted in significant discriminating variables which enabled the development of a profile for Extenders and Completers. Extenders were more likely to be affiliated with the College of Engineering, maintained the perception that students, university-wide, were under pressure to get high grades and have a 2.50 mean grade point average. Completers had a 3.00 mean grade point average, were more likely to have started and remained in the same major, and were frequently affiliated with the College of Arts and Sciences.
Chapter Five

Summary Of The Study

Student perceptions of the influences of faculty concerning the length of time to complete an undergraduate degree were examined. There were two independent populations used for comparison. One sample population included students who enrolled in the university as first-time freshmen during the 1987 fall semester and who were full-time continuously enrolled beyond eight semesters (Extenders). The second sample population consisted of students who enrolled in the university during the 1987 fall semester as first-time freshmen and who were full-time continuously enrolled and completed a degree within eight semesters (Completers).

Measures of student perceptions of faculty were obtained utilizing material from Hearn (1987), Pascarella (1980) and Astin and Panos (1969). Data were collected and first analyzed using the Chi-Square Test of Independence and the Independent Samples t-Test to determine differences between Extenders and Completers. The demographic independent variables included gender, ethnicity, college affiliation, the Scholastic Aptitude Test verbal and math scores, and grade point average. These measures were
obtained from university records. Information concerning other demographic variables were obtained from self-reports gathered from a questionnaire. This information provided data concerning the pattern of developing of a major, summer school attendance, and career plan or situation. The perceptual independent variables were composed of several scales measuring academic competition, impersonal and inaccessible faculty, characteristics of faculty, student-faculty interaction, and faculty concern for teaching and student development. Discriminant Analysis, a multivariate statistical procedure, was then used to determine the relationship between student perceptions of faculty influences and the length of time to complete a degree.

Contexts of the Study

The university students who were subjects for this study were enrolled at a large, state-supported research university located in the southeastern United States during a period of time ranging from fall semester 1987 to either spring or fall semester 1991. These students were not isolated from the larger social, political, and economic impacts of the nation nor the influence of the campus environment. What follows is a general description of the social contexts which were deemed important during the
period of enrollment for the subjects of this study and a
discussion of the measured perceptions of students
concerning the campus environment.

National and State Contexts

The period between 1987 and 1991 can be described as a
recessionary time with increasing levels of unemployment and
both state and federal budget retrenchment. Funding for
higher education nationally was reduced, and the university
at which the students of this study were enrolled suffered
large budget reductions. The effects of the budget cuts on
the specific university used in this study, related to
students enrolled, were most notable in fewer course
offerings and increased class size. This study made no
attempt to formally assess this influence between Extenders
and Completers but presents this description only as a
context reference.

During the 1991 spring semester the United States
entered the Persian Gulf War. No draft was in effect at
this time; the effect of this military action was not
specifically included as part of this study.

Campus Contexts

The Academic or Intellectual Competition Scale and the
Impersonalism and Inaccessible Faculty Scale served as
measures of the university environment for both the major
and university-wide. The reliabilities of both scales were
unsatisfactory, and each item was allowed to be independent, not treated as a complete scale, in the initial analysis. Only one item, agreement that university-wide students are under pressure to get high grades, yielded differences between Extenders and Completers. However, since no other differences were found between Extenders and Completers on the remaining items, an examination of each of these items resulted in a collective perception among both Extenders and Completers relative to the campus environment (Table 4).

The majority of respondent students used as subjects of this study agree that university-wide students are treated like numbers in a book and that there is little or no contact with faculty. There appears to be overwhelming agreement among students that university-wide classes are usually large.

Responses to the environmental scale items associated with the major take a different form. In the major, students do not report feeling treated like numbers in a book, and they indicate much more contact with faculty. Over half of the students agree that class are usually small within their major.

Respondents generally agree that their peers are very bright academically and that competition is keen among most students for high grades both in the major and university-wide. Overall, study respondents agree that students are
under pressure to get high grades.

It is important to note that study respondents, both Extenders and Completers, reported high levels of either no outside class contact or low outside class contact with faculty (Table 3). During the majority of the enrollment period for the subjects of this study, the university Student Union was under renovation and remained closed. Facilities which served to promote interaction outside of class were limited.

Research Question

This study specifically investigated the influence of university faculty on students who are Completers and on students who are Extenders associated with differences in (a) gender, (b) ethnicity, (c) college affiliation, (d) initial student ability, (e) pattern of developing a major, (f) perceptions of environmental press university-wide and in their major, (g) perceptions of major and non-major faculty, (h) career orientation, and (i) academic achievement.
The Influence of Student Perceptions of Faculty

Apparently, student perceptions of university faculty have no significant effect on the length of enrollment between Extenders and Completers at this particular university. The findings of the discriminant analysis procedure revealed that all variables that measured student perceptions of faculty influence resulted in no significant effect upon the length of enrollment. This result was not expected given the vast body of research that indicates the large degree of influence that faculty exert upon college students (Astin, 1977; Endo & Harpel, 1982; Gamson, 1967; Lacy, 1978; Pascarella, 1980; Pascarella & Terenzini, 1976, 1977, 1979, 1981, 1990; Phelan, 1979; Weidman, 1979; Wilson, Wood, & Gaff 1974; Wilson, Gaff, Dienst, Wood, & Bavry, 1975).

Differences between Extenders and Completers were noted on several of the student perception of faculty scales using the Chi-Square Test of Independence and the t-Test for Independent Samples. However, the multivariate procedure of discriminant analysis examines the means, variances, and covariances of all the independent variables and considers the effects of the collective combination of all the independent variables simultaneously (Cooley & Lohnes, 1971; Press, 1982). This allows the determination of the
magnitude of influence that each significant variable has on the dependent variable. If the independent variables are not linearly independent the results of a multivariate analysis may be susceptible to the effects of multicollinearity; allowing one or more independent variables to serve as a proxy or other significant independent variables due to the correlations between them. Therefore, it is quite possible to obtain significant findings based upon the univariate or bivariate statistical procedures like the t-Test or Chi-Square test and then find that the influence of these significant independent variables have little or no effect on the dependent variable in a multivariate approach.

Explanations for Negative Findings

Limited Faculty Contact

Perhaps the strongest explanation for the absence of any measure of student perceptions of faculty influence as a significant discriminating variable is that faculty contact, as reported by study respondents within the university setting used for this study was very low. In fact, 63% of the respondents indicated agreement that university-wide there is little or no contact with faculty (Table 4). The majority of respondents reported that they had not developed
a close personal relationship with at least one non-major faculty member (Table 8). Almost a quarter (23%) of the respondents indicated agreement that there is little or no contact with faculty in the major (Table 4).

Extenders reported that on average they had not developed a close personal relationship with at least one faculty member in their major while Completers on average reported slight agreement that this development occurred. Support for this explanation of negative findings is also found in Table 3 where outside class faculty contact was reported as being low to none for 85% of Extenders and 70% of Completers.

Since the overall level of student-faculty contact appears to be very low at this particular university, variation in the experience and perceptions of students associated with the influence of faculty measures may have been very skewed. This would account for the unexpected departure from the research literature concerning the important impact which student-faculty relationships have on college students.

Institutional and Class Size

Astin (1972) argued that the negative effect of institutional size can most likely be explained by "...the neglect of undergraduate teaching that characterizes faculties in many large research universities ... and the
impersonality that often results from the highly bureaucratic structures needed to run large institutions" (p. 172). University-wide, respondents to this study reported overwhelming agreement (72.9%) with the statement that students are treated like numbers in a book (Table 4). Relative to their major only 16.8% of respondents indicated agreement with the statement that students are treated like numbers in a book.

Class size cannot be overlooked as an important mediator of the deferential perceptions of students associated between university-wide and within their major considerations. Astin (1975) reported that the actions and behaviors of faculty in the classroom are important in influencing student perceptions to the receptivity of further contact outside the classroom. Relative to their major, 57.2% of the respondents reported class size as usually small compared to university-wide where only 5.5% indicated classes are usually small.

Since the academic experience of most college students initially revolves around general studies requirements and classes typically outside the major, it appears very likely that initial student-faculty contact in this university setting is relatively low during this period. Thus, a redundant situation may indeed become the institutional norm where student opportunities for meeting needs and
participation are diminished and overall satisfaction reduced (Chickering, 1969). Illustrative of this point one respondent wrote, "I genuinely regret not having developed any personal relationships with faculty members but as I think back, the opportunities to do so were limited." The experience of large classes during the initial years of college may indeed establish a type of expectation relative to student-faculty relationships which tend to be perpetuated throughout the collegiate experience. "Contact outside the classroom is limited and I personally don't look for it," wrote one respondent. If students become accustomed to not developing interaction with faculty either in class or outside class it is possible that any motivation to do so will be quite small even at the time when most courses are taken in the major.

The result of this situation may lead to confusion and stress among students regarding expectations of faculty contact. This circumstance appears to be the case at the university setting used for this study. In response to a questionnaire item regarding satisfaction with the opportunities to meet and interact informally with non-major faculty and major faculty, respondents on average indicated slight dissatisfaction relative to opportunities for interaction with non-major faculty (Table 8) and bordered on having no opinion regarding opportunities relative to major
faculty (Table 7). No statistical differences were noted between Extenders and Completers, but the confusion which was expressed is apparent.

Astin (1972) reports that "...the strongest predictor of student-faculty interaction ($r = .18$) is the student's interpersonal self-esteem at college entry" (p. 88). Student self-esteem may in reality not be sufficient to overcome the effects of institutional norms and the initial limited interaction between students and faculty. Some systematic and structured program to promote connections between students and faculty might be necessary. To this point one respondent commented, "The university should encourage more required contact with the faculty outside of class. Any contact I had with a faculty member was by my own motivation."

Consistent with previous research (Anderson, 1984; Astin, 1977; Boyer, 1987; Chickering, 1969; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1991) the findings of this study also indicate that enrollment at a large institution tends to inhibit student-faculty contact.

**Other Influences**

This study was limited and did not take into consideration all the possible variables related to student interaction with faculty. Feldman (1976) reported that student expectations influence student reactions to their
instructors. Anderson (1981) reported that satisfaction with professors, along with other aspects of campus integration, is affected by student employment. The social norms of the campus, including peer influences, may also structure the nature of student-faculty relationships and contact. Boyer (1987) argues that the faculty reward system of gain for publication and obtaining grants inhibits faculty from developing relationships with students.

**Reliability and Response Rates**

It is possible that the reliability of the measures used for student perceptions of faculty influence were insufficient. This could have created an error of measurement and attenuated correlations between variables thus leading to a statistically biased estimate (Pedhazur, 1982). Increased reliability may have lead to a different statistical conclusion.

There was no pattern evident to suggest a response bias between questionnaire respondents and non-respondents. However, increased rates of response to the survey questionnaire could have improved measurement of student perceptions of faculty influence and thus have an affect on the results of this study.
Multicollinearity Effects

The effects of multicollinearity were examined and found to exercise little influence in the formulation of the linear discriminant function and the resulting significant variables. Discriminant analysis procedures utilizing tolerance settings which maximized multicollinearity (.01) and which minimized multicollinearity (.99) resulted in the addition of only two variables and accounted for approximately five percent of the variation attributed to the differences between Extenders and Completers. This essentially means that the probability is very low that an independent variable might not enter the discriminant function because another selected independent variable already in the function is serving as a proxy. Multicollinearity, therefore, does little to explain why student perceptual measures of faculty influence were missing among the significant discriminating variables.

Other Findings From Discriminant Analysis

Although this study found that student perceptions of faculty have no significant influence on the enrollment pattern between Extenders and Completers, other significant influences were discovered. These included grade point average, a perception that university-wide students are
under pressure to get high grades, being affiliated with the College of Arts and Sciences, pattern of developing a major, and being affiliated with the College of Engineering. These significant variables explained 30.9% of the total variance attributable to the differences between Extenders and Completers.

The standardized canonical discriminant function coefficients and the group means enabled the development of a classification function and a profile for Extenders and Completers. Completers tend to have higher grade point averages, to have started their undergraduate experience with a major and remained in that same major until completion and to be frequently affiliated with the College of Arts and Sciences. Extenders tend to be more frequently affiliated with the College of Engineering, have lower grade point averages, have a perception that university-wide student are under pressure to get high grades, and are more likely to have started their university experience as being undecided about a major or having reported changing majors. However, Extenders affiliated with the College of Engineering seldom report having changed majors.

Grade Point Average

The mean grade point average was found to be the most significant discriminating variable between Extenders and Completers. Completers have a higher mean grade average
than do Extenders. This is an important finding in that no significant differences between Extenders and Completers were noted on the scores of the Scholastic Aptitude Test. This indicates that the mean grade point average differences between Extenders and Completers are not due to initial ability measures but rather are due to student experiences and interactions within the collegiate environment used in this study.

It was notable that grade point average had a significant positive correlation with two measures of student perceptions of major faculty (Table 13). Stocker et. al. (1988) reported much of the significant influence of a student's major on bachelor degree completion as being indirect, mediated primarily through grades and to a lesser extent by interactions with faculty. While measures of student perceptions of the influence of faculty were not significant in the multivariate discriminant analysis it is important to recognize the significant differences found between Extenders and Completers as a result of the t-Test of Independence.

Completers reported that major faculty engaged in stimulating discussions more frequently and emphasized variety and new approaches in student work more frequently than did Extenders (Table 5). Completers reported more agreement, on average, that contact with major faculty
influenced career goals and aspirations (Table 8) and that major faculty are interested in students (Table 9). Quite likely, these measured perceptions could have an important indirect impact on the academic performance of Completers, consistent with the reported findings of Stocker et. al. (1988).

Another important consideration resulting from this study was that 59.3% of the Extenders compared to 44.1% of the Completers started undecided or changed majors. Pascarella and Terenzini (1991) summarize evidence that modifications in career choice (major) largely results as a response to academic performance. The exception to this result was Extenders enrolled in the College of Engineering who seldom report starting undecided about a major or as having changed majors. This exception will be discussed later.

Factors such as employment, residential situation, aspirations, motivation, interest, and parental support are not inclusive of all the variables which might impact upon grades and no doubt play an important role. These variables were not within the scope of this study.

University-wide Pressure to Get High Grades

The second most important variable which significantly discriminates between Extenders and Completers was agreement with the statement that university-wide students are under
pressure to get high grades. Agreement among Extenders (69.2%) was higher compared to Completers (59.9%) agreement (Table 4). The *ex post facto* nature of this study warrants a degree of caution in attempting explanation. Perhaps the perception of grade pressure was more a function of the time during which the study occurred and reflective of being unable to graduate within the traditional four-year eight semester time period rather than a pervasive pressure which characterized the entire collegiate experience of Extenders. The source for this interpretation resides in the fact that no significant correlation was determined between university-wide pressure for grades and any other significant variable (Table 13). This study did not examine the source of the feeling of pressure for grades.

**College of Arts and Sciences Affiliation**

The third most significant variable which explains differences between Extenders and Completers was affiliation with the College of Arts and Sciences. The most reasonable explanation for the importance of this variable in discriminating between Extenders and Completers rests in the fact that significant differences were found between Extenders and Completers affiliated with the College of Arts and Sciences associated with the pattern of developing a major as already reported. Indications are that large numbers of students who started undecided or changed majors
were affiliated with the College of Arts and Sciences. As previously noted, 60.4% of the subjects used in this study affiliated with this college self-reported that they started their university experience as undecided or changed majors. The fact that more Completers are affiliated with this college may be more related to the structure of curriculum requirements associated with the disciplines within the college. Students may be better able to declare affiliation with the College of Arts and Sciences or be better able to change majors without any great difficulty or loss of credits. The reasons that students changed majors or became committed to a major were not addressed by this study and this topic needs further investigation.

Pattern of Developing a Major

The pattern of developing a major was the fourth most important discriminating variable between Extenders and Completers. Starting and remaining in the same major or having some form of mobility, changing majors or starting undecided and later developing a major, characterized the dimensions of this measure. This variable was not present in the discriminant analysis when controlling for minimum multicollinearity (tolerance setting equal to .99) and therefore appears not to be independent of the significant variables already in the discriminant function.
As reported earlier, the pattern of developing a major was transformed into two categories: starting and remaining in the same major and mobility in developing a major (starting undecided or changing majors). The newly transformed pattern of developing a major variable was found to have a significant correlation \( r = -0.16 \) with affiliation with the College of Arts and Sciences. This finding partially explains the issue of multicollinearity in that no other correlation was noted with the other significant variables already in the discriminant function.

Evidence that clearly indicates that college students frequently change majors and career plans are well documented (Pascarella & Terenzini, 1991; Titley & Titley, 1980). Tinto (1987) writes, "... it has been observed that nearly three of every four college students will experience some form of educational and/or occupational uncertainty during the course of their college careers..." (p. 42). Contrary to other studies, this particular pattern of developing a major appears not to be the case within the university setting of this study. While mobility in the pattern of developing a major was found to be significantly higher for Extenders than for Completers, university-wide only 141 (48.3\%) of the respondents to this study (292) self-reported starting undecided or as having changed their major.
This finding implies that the extension of enrollment beyond the traditional eight semester time period may be related to reasons other than just starting undecided about a major or changing majors. A comparison of Tables 14 through 16 allows the determination of the fact that Extenders accounted for only 34% of those who reported starting undecided or as having changed majors.

The heavy emphasis on professional and technological academic and career programs at this particular university may in fact attract students who are more committed to their major. As already reported, Extenders tend to have lower grade point averages, perhaps then, the economic rewards and higher status payoffs of specific majors motivate the student to endure the rigors of instruction and inspire them to extend their enrollment to improve grades and thus increase employment opportunities. Such could also be the case with undertaking a second major or developing a minor to add to their individual employment assets. Undoubtedly, additional study is necessary to establish with certainty the pattern of developing a major which specifically influence Extenders.

Affiliation with the College of Engineering

The fifth most important variable that was found to be a significant discriminator between Extenders and Completers was affiliation with the College of Engineering. Like the
pattern of developing a major, this variable was not present when controlling for minimum multicollinearity (tolerance setting at .99) which indicates some relationship with at least one significant variable already in the discriminant function. That relationship can be found in Table 13 and indicates a significant positive correlation \((r = .36)\) with starting and remaining in the same major. The positive direction means that many engineering students entered the university with a major in engineering and remained in that same major. The highest number of Extenders were found associated with this college, and 85% indicated starting and remaining in the same major (Table 15). Therefore, the effects of multicollinearity appear to exist as a result of the pattern of developing a major, since no other significant correlations with other variables already in the function were noted.

The lack of a significant correlation between affiliation with the College of Engineering and grade point average indicates that Extenders in this college do not differ significantly from Completers relative to average grades. Explanations as to why more Extenders are affiliated with the College of Engineering are not clearly apparent from the results of this study. A need for further study to explain this situation exists.
Possible explanations may reside in a qualitative study of Extenders who are engineering students. The following comments from engineering Extenders serve to illustrate this point. One Extender provided the following comment: "My major was mechanical engineering where there is little leeway in outside major courses. This tends to limit students' experience and make them narrow minded." His comment continues, "Students in mechanical engineering should be encouraged to do what I did and take five years to pursue their degree while delving into other interests like math, music, and economics like I did." Another engineering Extender wrote "My electrical engineering teacher/advisor was unaware of the effects and requirements of most classes, particularly the effects of advanced sections."

Relevant questions directed as to why they did not graduate in the traditional four-year period need to be formulated. Is it possible that these Extenders encountered course sequence problems? Did these students develop a minor or even a second major which extended their enrollment? Is the curriculum structured such that most students with proper advising can achieve completion in eight semesters? Do the offerings for the university core requirements meet the scheduling needs for engineering students? Affiliation with the College of Engineering
requires further study to enable explanation of the reasons that so many engineering students are Extenders. The relationship between gender and affiliation with the College of Engineering will be discussed later.

Gender Differences

Even though gender was not a significant discriminating variable between Extenders and Completers based upon the multivariate discriminant analysis procedure, it is important to include a brief discussion concerning the findings of this study. The Chi-Square results of this study were significant and indicated that a higher percentage of Completers were female (55.0%) and a higher percentage of Extenders were male (65.4%). The fact that more females were Completers than were males was particularly notable, given that the university used in this study enrolls a higher percentage of males (College Board, 1987, 1991). This finding is consistent with those of Cope and Hannah (1975) and Stoner and Deridder (1982) which both indicate that women tend to graduate within the traditional schedule of eight semesters more often than men.

There is the possibility that, specific to the university at which this study was conducted, female persistence rates are higher than those of males. This
would account for some amount of the increased female degree completion rate given the higher number of males present in the population. Based upon the sample data provided for this study by the Office of Program Review and Outcomes Assessment, the number of first-time freshman who entered during the 1987 fall semester and who did not continue included 254 males (61.1%) and 162 females (38.9%). Since the sample was random, there is a very strong possibility that this dropout rate is representative of the total population of 1987 first-time freshman and is supportive of the position that females at this university have higher persistence rates than males. A second possibility is that males may have stopped-out more frequently than females.

A third possible explanation for finding more females among Completers and more males among Extenders might be found in the relationship between gender and college affiliation (major). A significant correlation between gender and college affiliation was noted for two colleges. Affiliation with the College of Engineering resulted in a significant positive correlation (r = .28) with gender (Table 13), indicating the presence of more males than females. Engineering Extenders included 22 (81.5%) males and 5 (18.5%) females. Engineering Completers included 27 (73.0%) males and 15 (27.0%) females. Overall, 77.0% of the subjects used in this study, affiliated with the College of
Engineering were male. Male Extenders affiliated with the College of Engineering represent (41.5%) of the 53 males who are Extenders. Clearly, the effects of gender relative to the College of Engineering largely contribute to the finding that a higher proportion of males are Extenders and may have also served as a proxy for gender in the discriminant analysis procedure.

The second significant correlation between gender and college affiliation was noted for the College of Human Resources, as a result of additional analysis. Affiliation with the College of Human Resources resulted in a significant negative correlation ($r = -.23$) with gender, indicating the presence of more females than males. Human Resource Extenders included 2 (100%) females and Human Resource Completers included 7 (100%) females. The effects between gender and affiliation with the College of Human Resources would appear to be modest. No other significant correlations between gender and college affiliation were noted. These explanations need further exploration to determine their adequacy.
Recommendations for Practical Application

One large state-supported research university was the campus setting used in this study. Therefore, most of the recommendations for practice are institution specific. They are listed below.

1. The profile of Extenders developed from the results of this study should be shared with academic departments and advisors. Advisors should give special assistance to those students who appear to be fitting the profile. Students whose grade average is below 2.5 and who feel university-wide pressure for grades could possibly benefit from more guidance from advisors. Given the institutional norm of low faculty contact and possibly low advisor contact, structured efforts to work with these students to help them control the stress which emanates from pressure for grades and the provision of assistance in course selection, and study skills could help these students develop more sense of academic competence and personal fulfillment.

2. Particular attention to the advising, course selection, and scheduling for engineering students appears necessary. Special consideration for an academic assistance program to help engineering
students who have trouble with skills and concepts might be helpful, not only in meeting academic needs of engineering students, but also promoting the perception that the College of Engineering is a supportive college, committed to the overall success of students.

It is important to note that affiliation with the College of Engineering resulted in a significant negative correlation ($r = -0.54$) with the Characteristics of Faculty Scale applied to major faculty and a significant positive correlation ($r = 0.52$) with the Characteristics of Faculty Scale applied to non-major faculty (Table 13). This finding implies that engineering students rate the helpfulness and supportiveness of faculty in their major lower than faculty outside their major. Perhaps interpersonal skill workshops and instructional methods training for engineering faculty would help this situation and improve the overall completion rate for engineering students. The College of Engineering should consider an self-evaluation of its effectiveness in meeting the overall needs, academic and developmental, for engineering students.

3. Student self-reports associated with the level of student-faculty contact is low for this university. Given the large amount of research (already cited)
which indicates enormous benefits to student
development and institutional commitment as a result of
increasing levels of faculty contact, this university
would seem to benefit by developing methods to increase
this aspect of campus life. A committee to develop
specific ideas and means to enhance both the quantity
and quality of student-faculty relationships needs to
be established. If properly conceived and implemented
both retention of students and four-year graduation
rates could dramatically improve.

Recommendations for Further Research

If individual universities and colleges are indeed
concerned about their rates of graduation each institution
should undertake an outcomes assessment program to determine
the differences between Extenders and Completers. To be
unable to explain why Extenders take longer to graduate as
compared to Completers, in light of the financial and
personal burdens imposed upon individuals, may lead to
problems associated with admissions and college selection
and even funding. Little research exists to provide
guidance in such a study and the results may well be
specific to the culture and climate of each distinctive
campus setting. Such a study could possibly lead to
increasing the graduation rate and providing direction to evaluation programs. The sharing of this information in an open and honest manner with scholars of higher education could possibly lead to traits or patterns related to extended enrollment.

The most important recommendation for further research is for a replication of this study. The effects of student perceptions of faculty influence between Extenders and Completers were not clearly determined in light of limited variability in the level of student faculty contact reported for the campus used in this study. Replication at other campuses with varying levels of student-faculty contact should enable a more precise conclusion relative to the nature of this effect.

This study chose only one aspect of the Model of Extended Enrollment (Figure 1) to investigate, student perceptions of faculty, in explaining the differences between Extenders and Completers. Studies that focus on other aspects of the model will provide information and knowledge to add to explaining why some students are Extenders and some are Completers.

Many future research studies of extended enrollment will most likely be specific to a single institution, however, a concentration on the institutional characteristics and campus environmental press as related to
rates of extended enrollment seems most useful. As more studies provide data from a variety of institutional settings there is a possibility of identification of common factors that exists in campus environments which contribute to higher or lower rates of extended enrollment.

The specific university used in this study should continue to collect and monitor data that focuses upon the differences between Extenders and Completers. Differences in credit accumulation by semester, hours attempted and credit earned each semester, qualitative interviews with Extenders and Completers, and the student perceptions of the institutional environment will help to build a framework to improve four-year degree completion rates.

Conclusion

The outcome of this study indicates that student perceptions of faculty influence have little affect in explaining the differences between Extenders and Completers. This finding must be tempered because of the limited variability in student-faculty contact in the campus setting utilized for this study.

Based upon a multivariate discriminant analysis, the grade point average appears to be the most important variable in explaining differences between Extenders and
Completers followed by a feeling that university-wide students are under pressure for high grades. The pattern of developing a major was also found to discriminate Extenders from Completers. These findings may be less institution specific than many of the other results.

Perhaps specific to this university, affiliation with the College of Arts and Sciences and the College of Engineering were also found to be significant discriminators between Extenders and Completers. No other college affiliation was noted to enable discrimination.

The results of the multivariate procedure explained approximately 31% of the variation between Extenders and Completers. Clearly, more research is necessary for understanding the true nature of the collegiate experience associated with Extenders. If institutions become committed to increasing their rates of graduation it is extremely important for them to activate an outcomes assessment program to focus on the differences between Extenders and Completers. The results, shared openly with other institutions and scholars, could well benefit both the quality of the collegiate student experience and the overall developmental impact of higher education. These are truly worthy aspirations for any college or university.
References


Gainer, W. J. (1989, September, 11). *Student Athletes: Most schools meet proposed academic performance reporting requirements*. Briefing report to the Chairman, Committee on Labor and Human Resources. U.S. Senate, Washington D.C.


Norusis, M. J. (1990c). *SPSS/PC + statistics 4.0 for the IBM PC/XT/AT/and PS/2*. Chicago: SPSS INC.


Appendix A

Survey Questionnaire

Faculty Influence on Student Academic Progress

The following questionnaire is designed to allow you to express your perceptions regarding your experience with university faculty at [blank]. You are asked to respond about faculty in your major and about faculty outside your major. Think about your general impressions concerning your experience with university faculty in formulating your responses.

Section I. Please respond to both columns concerning the characteristics of faculty. Circle the number that best indicates your response to the items below, once for faculty in your major and once for faculty not in your major. Think about your general impressions about faculty when you respond.

1 = Hardly Ever
2 = Occasionally
3 = Frequently
4 = Almost Always

<table>
<thead>
<tr>
<th></th>
<th>MAJOR FACULTY</th>
<th>NON - MAJOR FACULTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Helped and supported students</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2. Provided opportunities for social interaction with other students</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3. Engaged students in stimulating discussions</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>4. Clearly explained the requirements, rules and regulations</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>5. Encouraged students to become involved in their work</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>6. Emphasized variety and new approaches in student work</td>
<td>1 2 3 4</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

Section II. Student contact with faculty happens in the classroom, laboratory, or studio and outside the classroom in the faculty office, at a meeting or cultural event, or at a place to socialize. Please give your best judgement of the weekly average of the frequency of your overall out-of-class contact with faculty by circling the appropriate number on the scale below.

0 = None     1 = Low     2 = Moderate     3 = High

<table>
<thead>
<tr>
<th>Outside Contact per week</th>
<th>Average</th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1-3)</td>
<td>(4-7)</td>
<td></td>
<td>More than 8 per week</td>
</tr>
</tbody>
</table>

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### Section III

Please respond to both columns regarding the following statements. Respond once about faculty who are in your major and once about faculty who are not in your major. Circle your response for each.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Major Faculty</th>
<th>Non-Major Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My nonclassroom interactions with faculty have had a positive influence on my personal growth, values, and attitudes.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2. My nonclassroom contacts with faculty have had a positive influence on my intellectual growth and interest.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3. My nonclassroom contact with faculty have had a positive influence on my career goals and aspirations.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4. I have developed a close personal relationship with at least one faculty member.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>5. I am satisfied with the opportunities to meet and interact informally with faculty.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6. Few faculty I have had contact with are generally interested in students.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>7. Few of the faculty I have had contact with are generally outstanding teachers.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>8. Few faculty I have had contact with are willing to spend time outside class to discuss issues important to students.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>9. Most faculty I have had contact with are interested in helping students grow in more than just academic areas.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>10. Most of the faculty that I have contact with are genuinely interested in teaching.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

### Section IV

Please check the one item below that best describes your experience at [redacted]

- 1. I started undecided but eventually developed a major.
- 2. I started with a major and remained in that same major.
- 3. I started with one major but changed to another.
- 4. I have changed my major two or more times.
Section V. Please respond to both columns. Circle either a yes or no for both your major and for the university overall.

<table>
<thead>
<tr>
<th></th>
<th>MAJOR</th>
<th>UNIVERSITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Students are under pressure to get high grades.</td>
<td>yes no</td>
<td>yes no</td>
</tr>
<tr>
<td>2. Students are very bright academically.</td>
<td>yes no</td>
<td>yes no</td>
</tr>
<tr>
<td>3. Competition is keen among most students for high grades.</td>
<td>yes no</td>
<td>yes no</td>
</tr>
<tr>
<td>4. Course work is definitely more theoretical than practical.</td>
<td>yes no</td>
<td>yes no</td>
</tr>
<tr>
<td>5. Classes are usually small.</td>
<td>yes no</td>
<td>yes no</td>
</tr>
<tr>
<td>6. Students are treated like numbers in a book.</td>
<td>yes no</td>
<td>yes no</td>
</tr>
<tr>
<td>7. There is little or no contact with faculty.</td>
<td>yes no</td>
<td>yes no</td>
</tr>
</tbody>
</table>

Section VI. Please check all items that describe your enrollment status.

____ 1. I was a part-time student (enrolled for less than 12 credit hours) for one or more semesters, excluding summer sessions.

____ 2. I always enrolled for 12 credit hours or more each fall and spring semester of attendance.

____ 3. My enrollment was continuous without taking off any semester, fall or spring, since I first enrolled.

____ 4. I was a co-op student.

____ 5. I attended one or more summer sessions.

____ 6. I transferred to Virginia Tech from another college or university.

Section VII. Please check the one statement which best describes your after graduation plan or situation.

____ 1. I am undecided about what to do.

____ 2. Entering the job market is my plan.

____ 3. I have a job already.

____ 4. Graduate or professional school enrollment is my plan or situation directly following the completion of my degree.
Section VIII. You are encouraged to make any comments you wish concerning your experience with university faculty. Please add additional paper if necessary. Your comments are important.

When you have finished, please put the survey in the enclosed envelope and put it in the mail. Your involvement is appreciated.

THANK YOU FOR YOUR TIME.
Appendix B

Recent Graduates Letter

September, 1991

Dear Graduate:

[Redacted] undertakes a number of studies to assess various aspects of the quality of programs offered. Information provided by graduates is very important and is used for planning and program development purposes.

Faculty are one of the most important resources of the university. The university would like to solicit your impressions concerning your experiences with faculty at [Redacted].

Enclosed is a short survey, which provides you the opportunity to express your perceptions about your experience with university faculty. The information you provide will be kept confidential and reported only in a grouped format. The number on the survey and mailing label is used only for follow-up of non-respondents.

Your perceptions and opinions are needed and appreciated. Please try to respond as soon as possible.

Thank you in advance for your assistance.

Sincerely,

[Redacted]

Director of Program Review and Outcomes Assessment
Appendix C

Continuing Student Letter

September, 1991

Dear Student:

undertakes a number of studies to assess various aspects of the quality of programs offered. Information provided by students is very important and is used for planning and program development purposes.

Faculty are one of the most important resources of the university. The university would like to solicit your impressions concerning your experiences with faculty at .

Enclosed is a short survey, which provides you the opportunity to express your perceptions about your experience with university faculty. The information you provide will be kept confidential and reported only in a grouped format. The number on the survey and mailing label is used only for follow-up of non-respondents.

Your perceptions and opinions are needed and appreciated. Please try to respond as soon as possible.

Thank you in advance for your assistance.

Sincerely,

Director of Program Review and Outcomes Assessment
Appendix D

Follow-up Post-Card

Greetings:

A few days ago you received a survey form about the influence of university faculty. Your response is critically important in assisting evaluate the effectiveness of programs. Please try to complete the questionnaire just as soon as possible. If you have already returned your questionnaire, please ignore this reminder and accept our appreciation for your interest and participation.

Thank You
Appendix E

Recent Graduates Follow-up Letter

October, 1991

Greetings Dear Graduates:

Recently you should have received a survey concerning your experience with faculty at [University]. Your response has not been received at this time. If you have already completed the survey and put it in the mail, please disregard this reminder and accept a "Thank You" on behalf of the university. If you have not had the opportunity to complete the survey, you will find another copy enclosed.

The university seeks your opinions and depends upon the information provided by students and graduates, such as yourself, in the assessment of the quality of programs offered. The information you provide is very important and is used for planning and program development purposes. If you have not completed and mailed the survey, please help the university by doing so as soon as possible.

The information provided will be kept confidential and reported only in a grouped format. The number on the survey and mailing label is used only for follow-up of non-respondents.

Thank you for your assistance.

Sincerely,

Director of Program Review
and Outcomes Assessment
Appendix F

Continuing Students Follow-up Letter

October, 1991

Greetings Dear Students:

Recently you should have received a survey concerning your experience with faculty at [redacted]. Your response has not been received at this time. If you have already completed the survey and put it in the mail, please disregard this reminder and accept a "Thank You" on behalf of the university. If you have not had the opportunity to complete the survey, you will find another copy enclosed.

The university seeks your opinions and depends upon the information provided by students and graduates, such as yourself, in the assessment of the quality of programs offered. The information you provide is very important and is used for planning and program development purposes. If you have not completed and mailed the survey, please help the university by doing so as soon as possible.

The information provided will be kept confidential and reported only in a grouped format. The number on the survey and mailing label is used only for follow-up of non-respondents.

Thank you for your assistance.

Sincerely,

Director of Program Review and Outcomes Assessment
## Appendix G

### Table G-1

**Means and Standard Deviations for Non-Significant Variables in the Discriminant Analysis**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Extenders</th>
<th></th>
<th>Completers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D.</td>
<td>Mean</td>
<td>S.D.</td>
</tr>
<tr>
<td>Gender</td>
<td>.67</td>
<td>.47</td>
<td>.50</td>
<td>.50</td>
</tr>
<tr>
<td>Faculty Contact</td>
<td>1.10</td>
<td>.74</td>
<td>1.33</td>
<td>.77</td>
</tr>
<tr>
<td>Char. of Major Faculty</td>
<td>17.14</td>
<td>3.24</td>
<td>17.66</td>
<td>3.13</td>
</tr>
<tr>
<td>Char. of Non-Major Faculty</td>
<td>14.57</td>
<td>2.86</td>
<td>14.68</td>
<td>2.97</td>
</tr>
<tr>
<td>Major Faculty Involvement Scale</td>
<td>16.86</td>
<td>4.64</td>
<td>17.47</td>
<td>5.00</td>
</tr>
<tr>
<td>Faculty Concern Scale (Major Faculty)</td>
<td>17.08</td>
<td>3.59</td>
<td>18.06</td>
<td>4.42</td>
</tr>
<tr>
<td>Faculty Concern Scale (Non-Major Faculty)</td>
<td>16.08</td>
<td>2.87</td>
<td>16.77</td>
<td>3.66</td>
</tr>
</tbody>
</table>
# Appendix H

Table H-1

Pooled-within-groups Correlations Between Non-Significant Discriminating Variables and the Canonical Discriminant Function

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Agriculture Affiliation</td>
<td>.21</td>
</tr>
<tr>
<td>Faculty Concern for Teaching and Student Development (Major Faculty)</td>
<td>.16</td>
</tr>
<tr>
<td>College of Education Affiliation</td>
<td>-.11</td>
</tr>
<tr>
<td>Faculty Contact Outside of Class</td>
<td>.10</td>
</tr>
<tr>
<td>Faculty Involvement Scale (Major Faculty)</td>
<td>.10</td>
</tr>
<tr>
<td>Characteristics of Faculty Scale (Major Faculty)</td>
<td>.09</td>
</tr>
<tr>
<td>College of Human Resources Affiliation</td>
<td>.07</td>
</tr>
<tr>
<td>Gender</td>
<td>.06</td>
</tr>
<tr>
<td>Characteristics of Faculty Scale (Non-Major Faculty)</td>
<td>.05</td>
</tr>
<tr>
<td>Faculty Concern for Teaching and Student Development (Non-Major Faculty)</td>
<td>.03</td>
</tr>
</tbody>
</table>
Appendix I

Table I-1

Alpha and Factor Loadings for Major Faculty Involvement

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Factor Loadings</th>
<th>Alpha If Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My nonclassroom interactions with major faculty have had a positive influence on my personal growth, values, and attitudes.</td>
<td>.72</td>
<td>.83</td>
</tr>
<tr>
<td>2. My nonclassroom contact with major faculty has had a positive influence on my career goals.</td>
<td>.70</td>
<td>.84</td>
</tr>
<tr>
<td>3. I have developed a close personal relationship with at least one major faculty member.</td>
<td>.69</td>
<td>.85</td>
</tr>
<tr>
<td>4. My nonclassroom contacts with major faculty have had a positive influence on my intellectual growth and interest.</td>
<td>.67</td>
<td>.84</td>
</tr>
<tr>
<td>5. Major faculty engaged students in stimulating discussions.</td>
<td>.63</td>
<td>.85</td>
</tr>
<tr>
<td>6. Most major faculty I have had contact with are interested in helping students grow in more than just academic areas.</td>
<td>.62</td>
<td>.85</td>
</tr>
<tr>
<td>7. Major faculty helped and supported students.</td>
<td>.61</td>
<td>.85</td>
</tr>
<tr>
<td>8. Major faculty emphasized variety and new approaches in student work.</td>
<td>.60</td>
<td>.85</td>
</tr>
<tr>
<td>9. Major faculty provided opportunities for social interaction with other students.</td>
<td>.60</td>
<td>.86</td>
</tr>
</tbody>
</table>

Total scale Alpha was .86
Table I-2

Factor Loadings and Alpha for the Faculty Concern and Performance Scale

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Factor Loadings</th>
<th>Alpha If Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Few of the major faculty I have had contact with are generally outstanding teachers.</td>
<td>.77</td>
<td>.82</td>
</tr>
<tr>
<td>2. Few major faculty I have had contact with are willing to spend time out-side class to discuss issues important to students.</td>
<td>.76</td>
<td>.82</td>
</tr>
<tr>
<td>3. Few major faculty I have had contact with are generally interested in students.</td>
<td>.76</td>
<td>.82</td>
</tr>
<tr>
<td>4. Few non-major faculty I have had contact with are willing to spend time out-side class to discuss issues important to students.</td>
<td>.74</td>
<td>.83</td>
</tr>
<tr>
<td>5. Few non-major faculty I have had contact with are generally interested in students.</td>
<td>.71</td>
<td>.83</td>
</tr>
<tr>
<td>6. Few non-major faculty I have had contact with are generally outstanding teachers.</td>
<td>.66</td>
<td>.84</td>
</tr>
</tbody>
</table>

Items with negative direction were coded in reverse order

Total scale Alpha was .85
Table I-3

Factor Loadings and Alpha for the Non-Major Faculty

Interaction Scale

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Factor Loadings</th>
<th>Alpha If Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My nonclassroom contacts with non-major faculty have had a positive influence on my intellectual growth and interest.</td>
<td>.79</td>
<td>.72</td>
</tr>
<tr>
<td>2. My nonclassroom contact with non-major faculty have had a positive influence on my career goals and aspirations.</td>
<td>.78</td>
<td>.71</td>
</tr>
<tr>
<td>3. My nonclassroom interactions with non-major faculty have had a positive influence on my personal growth, values, and attitudes.</td>
<td>.78</td>
<td>.72</td>
</tr>
<tr>
<td>4. I have developed a close personal relationship with at least on non-major faculty member.</td>
<td>.59</td>
<td>.82</td>
</tr>
</tbody>
</table>

Total scale Alpha was .79
Table I-4

Factor Loadings and Alpha for the Non-Major Faculty

Interaction Scale

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Factor Loadings</th>
<th>Alpha If Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Non-major faculty provided opportunities for social interaction with other students.</td>
<td>.70</td>
<td>.63</td>
</tr>
<tr>
<td>2. Non-major faculty engaged students in stimulating discussions.</td>
<td>.66</td>
<td>.55</td>
</tr>
<tr>
<td>3. Non-major faculty helped and supported students.</td>
<td>.62</td>
<td>.61</td>
</tr>
<tr>
<td>4. Non-major faculty emphasized variety and new approaches in student work.</td>
<td>.61</td>
<td>.58</td>
</tr>
</tbody>
</table>

Total scale alpha was .66
### Table I-5

**Factor loadings and Alpha for the Faculty Interest in Teaching Scale**

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Factor Loadings</th>
<th>Alpha If Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Most of the non-major faculty that I have had contact with are genuinely interested in teaching.</td>
<td>.78</td>
<td>.47</td>
</tr>
<tr>
<td>2. Most of the major faculty that I have had contact with are genuinely interested in teaching.</td>
<td>.75</td>
<td>.65</td>
</tr>
<tr>
<td>3. Most non-major faculty I have had contact with are interested in helping students grow in more than just academic areas.</td>
<td>.57</td>
<td>.77</td>
</tr>
</tbody>
</table>

Total scale Alpha was .73
Table I-6

Factor Loadings for the Faculty Ability to Explain

Requirements Scale

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Non-major faculty clearly explained the requirements, rules and regulations.</td>
<td>.87</td>
</tr>
<tr>
<td>2. Major Faculty clearly explained the requirements, rules and regulations.</td>
<td>.79</td>
</tr>
</tbody>
</table>

Total scale Alpha was .76
Table I-7

Factor Loadings for the Faculty Encouragement Scale

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Major faculty encouraged students to become involved in their work.</td>
<td>.71</td>
</tr>
<tr>
<td>2. Non-major faculty encouraged students to become involved in their work.</td>
<td>.66</td>
</tr>
</tbody>
</table>

Total scale Alpha was .68
Table I-8

Factor Loadings for the Informal Interaction Opportunity

Scale

<table>
<thead>
<tr>
<th>Scale Items</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am satisfied with the opportunities to meet and interact informally with non-major faculty.</td>
<td>.83</td>
</tr>
<tr>
<td>2. I am satisfied with the opportunities to meet and interact informally with major faculty.</td>
<td>.77</td>
</tr>
</tbody>
</table>

Total scale Alpha was .73
Vita

George Edward Adams, Jr.

Home Address:
215 Willis Drive 2
California, Maryland 20619

Personal Information
Born: February, 20, 1950
Married, twin sons

Educational Background

1992 Doctorate of Education (Ed.D), Counseling and Student Personnel Services, Virginia Polytechnic Institute and State University, Blacksburg, Virginia

1981 certificate of Advanced Graduate Studies (CAGS), Counseling and Student Personnel Services, Virginia Polytechnic Institute and State University, Blacksburg, Virginia

1976 Master of Arts (M.A.), College Student Personnel, Bowling Green State University, Bowling Green, Ohio

1973 Bachelor of Arts (B.A.), History, St. Mary's College of Maryland, St. Mary's City, Maryland

Recent Professional Experience

Present - Elementary School Counselor and Teacher St. Mary's Public Schools, Leonardtown, Maryland

1981 - 84 Dean of Students, St. Mary's College of Maryland, St. Mary's City, Maryland

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