IN SEARCH OF A TECHNICAL COLLEGE STUDENT TYPOLOGY: PREDICTING STUDENT PERSISTENCE AND ATTRITION

by

RANDALL L. PETERS

(Under the Direction of Scott L. Thomas)

ABSTRACT

Students enrolled in a Technical College in Georgia were surveyed in an attempt to identify characteristics common to those who departed their program of study prior to completion. The results of the survey were then analyzed in view of Tinto's Longitudinal Model of Institutional Departure, to determine whether the technical college student's characteristics could be used to predict their early departure. Both quantitative and qualitative methods were used to arrive at the conclusion that the technical college students differed from students of four-year and other two-year colleges in terms of individual motivation and goal orientation.

INDEX WORDS: attrition, dropout, early departure, persistence, premature departure, propensity to persist, technical college student, Tinto's longitudinal model of institutional departure, voluntary attrition

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DEDICATION

This dissertation is dedicated to my parents, Hazel and "Pete" Peters, who, early on, taught me the value of education, and instilled in me the drive to excel in whatever I undertook. They have always believed in me, and have been my greatest supporters. This is also dedicated to my wife Brenda, and my children, Matt and Beth, who unfailingly made room for all of the papers and books, and who were kept off their computer for days at a time, so this paper could be written.

To Brenda and the kids, thanks for your continuing encouragement and prodding when necessary to help me to complete this project. I couldn't have done it without your love and support.

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INTRODUCTION

Voluntary attrition of students from technical colleges prior to completion of academic programs is a major concern of college faculty and administrators. This study examines student attrition from technical colleges and attempts to construct a profile, or typology, of risk factors unique to technical college students.

In a discussion of the cost of higher education, Amberg (1989) described recruiting and marketing thusly:

> All of these marketing activities geared toward recruiting are expensive, but if one university markets itself aggressively, others feel compelled to do the same simply to stay competitive. Costs soar as more universities follow on the coattails of the "trend-setters." Although admissions officers are reluctant to discuss costs, the money spent to enroll each freshman at America's four-year colleges and universities is astronomical. (p. 525)

A more recent study by the Council for Christian Colleges and Universities (Fuller, 2004) demonstrated that, at least for the 78 schools participating in the annual survey, the cost of recruiting a new student rose 44.6% between the years 1993 and 2002. (p. 1)

When a student departs prematurely, those resources have been expended, often without apparent gain, either by the institution or by the student. Cohen and Brawer (1996) state it this way: "…college leaders have had ceaseless difficulty in explaining how the students who attend for not more than one or two classes have benefited" (p.441). Federal financial aid is authorized to institutions of higher learning, with one of the conditions of the authorization being

an acceptable graduation rate—in fact, total attrition in excess of 66% can subject some institutions to complete withdrawal of Federal financial aid ("Standards of administrative capability," 34 CFR 668.16 (l)). Failure to maintain a sufficiently high rate of completion by students jeopardizes both this federal financial aid authority, as well as in many cases, continuation of accreditation by national and regional accreditation bodies. In spite of the foregoing, the first year attrition rate of college students has historically remained at about 50% in the past (Brawer, 1996). A simple manipulation on line of the IPEDS database using the peer institution comparison tool allows one to make an instant comparison of two-year colleges based on their completion rates. Using the most current IPEDS data, a comparison of 47 two-year colleges in Georgia, Florida and Alabama reveals a current graduation rate of 35.8%, a full time student return rate of 53.9%, and a part-time student return rate of 52.8% (http://nces.ed.gov/ipedspas/Expt/index.asp). In the Georgia Department of Technical and Adult Education's technical colleges, the attrition rate for most diploma level programs is about 50%--consistent with the national average for college freshmen. In a few certificate courses, however, the attrition rate can sometimes exceed 70% (Breeden, 2003). A complication running throughout the discussion of attrition rates is that not every two-year student intends to graduate with a credential; many have other, personal objectives, equally valid.

The institution is not the only one to prosper, however, when a student is successful, nor the only one to suffer loss if the student becomes an attrition statistic rather than a graduate or completer. Reporting on a study performed by the U. S. Bureau of Labor Statistics, Feemster (1999) described some of the differences between leavers and graduates:

> College grads are more likely to serve on the boards of hospitals and charitable institutions; those without degrees are more likely to sit on the board of a church. Grads

are more likely to play billiards and board games; non-grads are more likely to collect sports trading cards." (p.59)

He also stated, "Although they are more likely than less-educated consumers to say that their levels of savings are higher than a year ago…they are far less likely to say so than college graduates" (p. 60).

But lifestyle differences are not the only gains evident as students complete a college education. Since the 1950's, the data for four-year college students are virtually unchanged: a student who completes college will earn nearly 60% more over his or her working lifetime than one who does not complete college (Alexander, 1976). A more recent congressional policy analysis of private and public returns on investments in education (Hall, 2000) demonstrates the advantages of a college education: the median income for 1998 bachelor degree recipients was over $20,000 higher than for high school graduates. It was estimated in the same report that if education levels in the U.S. had stagnated in 1959, but everything else had remained exactly the same, the 1997 GDP would have been only 82.6 percent of its actual level; over 16% of the U.S. gross domestic product can be attributed to levels of educational attainment and their concomitant increases in productivity. Alexander (1976) laid it out in even more specific and dramatic terms. He found that the correlates to education extend throughout the social and economic realms, and touch almost every element of our society. He found that the higher the education level, the higher the individual's long term efficiency and productivity in the marketplace. Likewise, the higher the level of education, the higher the level of social conscience is likely to be. He went on further to say that "Firms apparently have found that greater productivity can be gained with less cost by investing in the more educated employees" (p. 93). A telling statement on the value of education with regard to employment is also found in Alexander's comments:

> Another interesting aspect of education's contribution to the employment relationship is that the duration of unemployment is inversely related to education. This may be attributable to any number of characteristics of the educated, but most certainly it is related to the educated worker's knowledge and increased efficiency in seeking out new employment. Education provides a capacity to acquire information and, because of variations in wages of educated versus uneducated, also provides more incentive to become employed. (p. 93)

The Joint Economic Committee's policy analysis on investment in education (Hall, 2000) updated and confirmed in many regards Alexander's earlier findings: "Possession of a college degree in 1996 increased the probability of being in the labor force by nearly 23 percent over high school graduates" (p. 6).

While these phenomena are derived predominantly from research at four and two-year colleges and universities, there exists a body of research that indicates that benefits similar in nature, but different in degree, also accrue to technical college students in vocational education and training specialties. Grubb (1995) investigated the typical claim that graduates of vocational-technical programs enjoyed the same kind of financial and employment advantages as had been documented for graduates of four-year college programs. He found that, although for some demographic groups the data were varied, in general, a vocational education was in fact advantageous to those who had earned it, albeit at lower levels than for four-year graduates. For the Technical Colleges in Georgia, there is even more evidence. Annually, the Department of Technical and Adult Education contracts with the Carl Vinson Institute of Government, a community service/research arm of the University of Georgia, to conduct a follow-up study of graduates of technical colleges in the Georgia system (non-graduates were not surveyed). In the

follow-up of the class of 1998, conducted in 2002, the Carl Vinson Institute reported that among 1127 graduates surveyed, 71% indicated that their job situation had improved since they had completed their technical training. The report also stated that "Eighty-seven percent (87%) of respondents said that their training had an impact on the improvement in their job situation, with 45% noting a significant impact" (Government, 2002, p. 15). The foregoing demonstrates that by almost any measure students who complete their college programs have advantages not enjoyed by those who choose to opt out prior to graduation.

The differences that result, both for the institution and the individual are so significant, that, according to Cohen and Brawer, (1996) "more studies of student attendance patterns have been conducted than of any other phenomenon within the institutions" (p. 62). But while the research is replete with studies and examples drawn from colleges and universities (Braxton, 2000); (Cooke & Sims, 1995); (Brunsden & Davies, 2000); (Tinto, 1993) there are few studies whose central focus is the technical college student.

Compared to two and four-year college students, these technical college students are typically commuters, enrolled in part-time courses and are over 20% more likely to leave prior to the second year of their education (Tinto, 1993). Closest in profile to the technical college student are those who attend community colleges in the United States. Calhoun (1995, p.223) described two-year college students thusly:

> …two year college students tend to use the curricula and services of the college for pursuing their educational objectives in their own time frames. They are most often commuters who attend part-time, for a variety of purposes, for one term or over a very extended period of time. Palmer (1990, p. 23) has described two-year college students as having "ad hoc attendance and course-taking patterns that often do not follow established

curricular paths." Clifford Adelman (1992, p. v) has concluded that community college students "engage in learning on their own terms and in their own time."

A recent study by the U.S. Department of Education National Center for Education Statistics, looking at data from 840 public and private two and four-year institutions took a longitudinal approach to the study of differences between two and four-year colleges, and confirmed virtually everything Tinto offered in 1993 (U.S. Department of Education, 2002). Since the technical colleges are open enrollment, they are also more likely to enroll students who do not complete their studies. In fact, Tinto (1993) states that, "It is quite apparent that higher selectivity is associated with lower rates of first-year attrition among beginning full-time students" (p. 20).

Perhaps not so apparent in terms of retention and attrition studies is the concept that children of college-educated parents tend to go to college, while students in families where no one was a college graduate tend not to attend either; an influence which reaches much further than to a single college-age generation. In fact, according to Feemster (1999), "Among (high school) graduates aged 18 to 24 in 1996, 91 percent of those whose parents held a bachelor's degree or higher enrolled in college. Of those whose parents had some college but no four-year degree, 77 percent enrolled" (p. 59). Little or nothing is said about students whose parents did not attend any college at all.

This phenomenon is a part of a sociological construct known as "cultural capital" well articulated by Livingstone and Sawchuck (2000):

> Children of the affluent classes, who have acquired familiarity with bourgeois cultural forms at home (through exposure to their parents' knowledge and manners, as well as linguistic forms) are seen to possess the means of appropriating similarly oriented school knowledge relatively easily. Working class kids, in contrast, find their

unfamiliarity with these cultural forms to be a major obstacle to successful school performance. (pp. 124-125)

The real difficulty in trying to understand students who are likely to leave prior to completion is principally twofold. Firstly, although as stated above, there is a significant body of research about the phenomenon of student leaving—most of the studies on the subject were intended to be predictive; we can tell in general the groups who are most likely to leave—there is almost no way to determine if a given individual will leave or stay (Tinto, 1993). Secondly, since student departure decisions are influenced by a wide range of factors, any number of which could be causative, it is difficult to say which or how many of the possible reasons that might exist may actually operate to cause a student to leave. Moreover, when we question our knowledge of these complex issues, it is hard to determine if reasons for leaving one institution even exist in another, or in similar but different kinds of institutions. An example will help to illustrate the point. Blanchfield (1971) found that successful students have a higher percentage of grants than unsuccessful students. For academic year 2002 in Georgia, approximately 74% of all technical college students received the HOPE grant (GDTAE, 2002), which pays for all tuition and mandatory fees, yet the attrition rate in some programs is in excess of 50%--clearly a contradiction to the findings of this one study. Even though the types of grants discussed in a 1971 article are considerably different than the HOPE grant of 2002, and even though the comparison may not be completely fair, confusion remains nonetheless. Trying to reconcile varying research results can be a difficult task. Although the many studies available indicate clearly that there are common features among and between students who leave, the exceptions are so dramatic, so frequent, and the potential reasons so many (not to mention the many potential interaction effects) that fully understanding student drop out behavior and its causes is very difficult.

An additional difficulty with understanding varying research results is lack of a common meaning for varied terms. See appendix A for a list of definitions of terms relevant to this study.

Our understanding of dropout behavior among technical college students is limited by the relative absence of studies which apply the same empirical research standards to this population. Several dissertations currently in progress suggest that new research may soon be published, but as of the present time, very little is known about the technical college population's motivations, or about their potential barriers to program completion, much less their need for academic or social integration, key factors in the two and four-year departure decision process, in the context of the technical college.

A Typology Approach

One way to manage the complexity in the study of student attrition is to attempt to reduce the number of possible reasons for attrition into manageable pieces. Such an approach was carried out by Darkenwald and Valentine (1985) for non-participants in adult education programs. The numerous variables they looked at eventually were reduced to only 5 groups of characteristics. This kind of simplification makes analysis of the complex phenomenon a little easier, as there are fewer interaction effects and fewer possible contradictions. A similar simplification of the complexity in analyzing persistence in technical colleges is a primary output of this study.

Purpose of the Study

The purpose of this study is to test the utility of existing theoretical models of student persistence in explaining attrition and persistence behavior among technical college students. The associated research questions are: (1) What common characteristics exist among technical

college leavers? (2) How are the characteristics of these students the same or similar to those of leavers from four-year colleges and universities, and two-year community colleges, for which data are already accumulated? (3) How can the commonalities among technical college leavers be organized into an effective typology, so that those who depart can be dealt with according to the commonalities? The study will also propose relevant theoretical modifications to existing models that will improve their utility.

Theoretical Framework

Researchers have been studying the phenomenon of college "dropout" for many years, compiling a vast amount of research on the student who leaves college early. Much of this research, however, has been disjointed, done in isolation, and ultimately, has taken its place in the literature as a complex set of findings that are sometimes contradictory and sometimes confirmatory.

In 1987, Tinto published the first edition of *Leaving College: Rethinking the Causes and Cures of Student Attrition,* which presented a coherent theory of why students make the departure decision; the conclusion of work he had been doing since the mid 1970s. His "Interactionist Theory" was such an elemental model of student attrition that in the introduction to the 2000 book, *Reworking the Student Departure Puzzle,* the author states, "Tinto's Interactionist theory…enjoys near paradigmatic stature in the study of college student departure. Such stature manifests itself in more than 400 citations and 170 dissertations pertinent to this theory" (Braxton, 2000, p. 2).

The limited generalizability of this literature is powerfully noted in Braxton's book. In a compilation of research studies done with the specific intent of confirming Tinto's model in regards to the element of institutional academic integration, he cites 20 multi-institutional studies

and 39 single institutional studies, none of which were conducted in technical colleges, and of those cited, only four were done on two year community colleges, the closest analogue to technical colleges. While this fact alone does nothing to undermine the validity of the findings of the studies or Tinto's model, it does beg the question about the applicability of these models to the technical college setting.

While the literature contains examples that both refute and confirm Tinto's Interactionist model of student attrition, there seems to exist firm empirical support for the theory when four-year college and university populations, and two-year community college populations are considered. There also appears to be much work yet to be done, however, to arrive at any kind of a universal theory of student attrition, if such may even be derived (Braxton, 2000). This void in the research literature opens the door to question whether the student inputs, the environment or activities of the technical colleges create differences in the resulting student motivations, commitments and responses, thereby leading to differences in the departure and persistence decision processes at these colleges.

Significance of the Study

This study is important specifically because it investigates a void in existing research—the generalizability of Tinto's theoretical model to the Technical College setting. This area is virtually untapped; only a few studies (for example, Colwell, 1988, Schwartz, 1989, Langeni, 1990) exist on persistence at technical colleges. By addressing this void, the overall ability of technical college administrators to influence departure behavior will be enhanced, even potentially leading to an ability to provide specially designed programs for students, to assist in their educational processes, and help prevent students from leaving prematurely.

This study will inform the already large body of literature on retention. By adding data relevant to these students and these institutions, the literature will be enhanced, and the previously asked questions about the applicability of these models to the technical college setting will be better understood. This will result in a strengthening of our knowledge about the applicability of the Tinto model.

A central contribution of the study will be its impact on the practitioner in the area of providing student services, especially counseling and advisement services, to technical college students. Academic advisors and college counselors continuously seek the ability to assist students in their college careers. A theoretical and operational model that would be of assistance in determining potential solutions to problems that have not yet materialized would have significant value in helping to advise students. Although human beings, in many ways, are inherently unpredictable, the design of this study will attempt to create an effective typology that can be used in a practical way to make early intervention, and thus a reduction in the attrition rate in the technical college setting.

Limitations and Delimitations of the Study

Delimitations.

This study is delimited by the nature of the institutions studied and the location in which the study was conducted. The results of the study may be generalizable to technical colleges and technical college students in the state of Georgia. The results may also apply to other institutions in other locales, but that is for researchers in those institutions to determine. There is no intent in this study that the results will be generalizable across all institutions.

The existence of two independent systems of higher education in Georgia—a unique feature among states—limits generalizability. In Georgia, the technical college system (The

Georgia Department of Technical and Adult Education) has as its main focus workforce development. This is a different orientation from many other state's systems of higher education. In Georgia, the schools belonging to the Board of Regents (the University System of Georgia) have as one of their objectives the transfer of students from junior to senior institutions. While this sometimes occurs in the technical college system, in that technical college students occasionally transfer into University System schools, it is not a primary mission of the technical college system.

Limitations.

There are at least three obvious limitations to this study. First, since it is based primarily on Tinto's Interactionist Theory, the known limitations of that theory are included in the assumptions and error in this study (see Braxton, 2000 for critical analysis). Likewise, there exists the possibility of statistical error in this study, in that, if the institution and students are not as representative of the statewide population of technical colleges and students as they were thought to be, the results could be open to wider interpretation than is desirable. Lastly, two sources of error could arise from the survey instrument used to collect the data. There may be other important characteristics and attitudes that were not measured here, and it is possible that the students who responded to the survey instrument may not have been entirely truthful. These possible sources of error are controlled for by the careful construction of the survey instrument, based as it is on sound foundational research that has been done prior to this study, and by adhering to generally accepted practices in survey design, construction and administration.

Chapter 2

REVIEW OF THE LITERATURE

This chapter will review the literature relevant to the construction of a predictive typology of students who leave the technical college prior to program completion. The purpose of the review is to provide the theoretical constructs necessary for the formation of the typology and to review relevant studies, which will enhance understanding of the context in which the typology exists. Finally, the chapter will look at a sample typology and how it was constructed; this will provide the underpinnings for the construction of a similar typology. The chapter is divided into the following sections: (1) Major Theories of Persistence and Attrition, (2) Attrition Data Correlations, and (3) Construction of Typologies.

Major Theories of Persistence and Attrition

For years postsecondary institutions have studied the phenomenon of dropout—of students who depart prior to completion. In fact, the phenomenon has been studied so thoroughly that it is probably the most often researched aspect of the academy (Cohen & Brawer, 1996). In a review of a book on the subject, Bean (1987) described the field of attrition research as having two principle perspectives:

> … the "two cultures" approaching the study of student attrition. The one, exemplified by this book, is a culture of practitioners who share their successes at particular schools and suggest that others follow suit. This emphasis is similar to Noel's earlier works, *Reducing the Dropout Rate,* edited by Noel and *What Works in Student Retention* by Beal and Noel. The authors are concerned less with why something reduces attrition and more

> with whether it does…The second culture, represented by Spady, Tinto, Pascarella, Terenzini, and my own work, is concerned with theories and explanations of why students drop out of school. It is presumed that if one knows why a student drops out, appropriate action can be taken which may lead a student to remain enrolled. The emphasis, however, is on understanding, and not on action. (p. 485)

Prior to the foundational theories

Before the construction of presently accepted theoretical models that attempt to explain attrition, numerous studies investigated aspects of the problem as related to student personality, and how personality characteristics influenced dropout behavior. Alfert and Scuzek (1966) investigated personality characteristics of dropouts by administering personality inventories to try to find characteristics unique or prevalent among them. Blanchfield (1971) found that a "Social Consciousness Score" and the percentage of the college cost that a student financed by grants were significant in predicting dropout. Bryan and Erickson (1970) looked at the utility of academic aspirations and plans as predictors of dropout. The concept "goal commitment", closely related to aspirations and plans, eventually became an element of most reliable persistence theories. Heilbrun, (1965) looked specifically at personality factors, as did Pervin (1966).

After this "wave" of investigations, the general area of study of the dropout issue turned to sociological aspects of the student/college mix. Kowalski (1977) investigated whether home and college environments were related significantly to the departure decision. Pascarella and Terenzini (1979) reported on the correlation between student-faculty informal contact during the freshman year and its impact on persistence and attrition. Pervin and Rubin (1967) used the

Transactional Analysis of Personality and Environment to derive six factors related to the college environment that correlated with dropout. The factors were (1) thinking of dropping out for non-academic reasons, (2) similarity of values to the faculty, (3) agreement with administrative rules and regulations, (4) feeling out of place at the college, (5) academic satisfaction, and (6) nonacademic satisfaction. Several of these factors were ultimately integrated into most current theories of persistence. As the situation appears today, efforts to construct unified theory as to the causation of student dropout have become the central focus of research on attrition.

Spady's model

Although he did not directly address college student attrition, the French sociologist, Emil Durkheim (1858-1917) constructed a theory of suicide in which a principal construct is that the integration, or lack of integration, into society prevents or enables an individual to make the decision to commit suicide (CMAJ, 2000). Hassan (1998) succinctly summarized Durkheim's philosophy in a few words: "Unlike egoistic and altruistic suicides which are related to the degree to which an individual is integrated with his society, anomic suicide is the result of a sudden and unexpected change in a person's social position creating a new situation with which he is unable to cope" (p. 169).

Spady (1970) applied Durkheim's theory of suicide to the study of college dropout. His model (1971) defined college as a situation in which students are integrated into a new society and into an academic system. If the background—the characteristics the student brings with him—does not allow him to feel fully integrated into these systems, the result is a "suicide"—a dropout from the college system. Of particular interest in Spady's model are the background

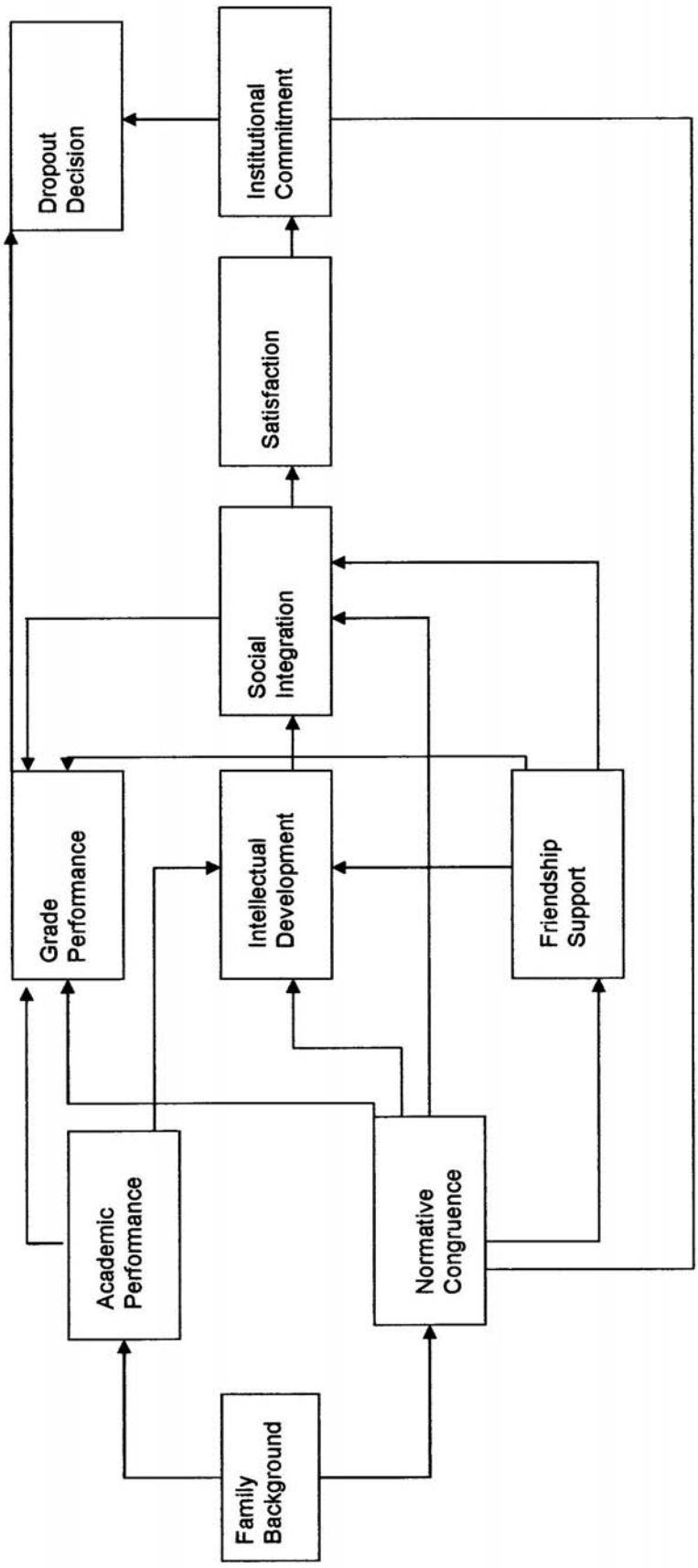

Figure 1. The Spady Model (Spady, 1971)

characteristics that are a part of the student, which are carried wherever the student goes. Such characteristics as financial support, family support and the importance of academic work Spady found to account for over 30 per cent of dropout behavior.

Tinto's model

Vincent Tinto (1993) expanded Spady's departure model, incorporating not only background characteristics and integration within the academic and social systems, but adding a goal/commitment construct as well as breaking down the institutional experiences into sub-components. Tinto viewed the departure decision as arising out of a longitudinal process, during which the student passes through three distinct phases. The three phases are separation, transition to college, and incorporation into college (1988). After entering the college environment, the key dynamic in Tinto's model is the tension created between goals and institutional experiences. This creates in the student either integration into the college environment or sets up a non-integrative situation. In the latter event, the student eventually makes the decision to withdraw. Tinto's model is today generally accepted as the theoretical framework most accurately describing the attrition/persistence issue. Braxton (2000) states,

> In addition to Tinto's theory economic, organizational, psychological, and sociological theoretical perspectives have been advanced to account for the departure puzzle (Tinto 1986, 1993). Tinto's interactionalist theory, nevertheless, enjoys near paradigmatic stature in the study of college student departure. Such stature manifests itself in more than 400 citations and 170 dissertations pertinent to this theory" (Braxton, Sullivan, and Johnson 1997). (p. 2)

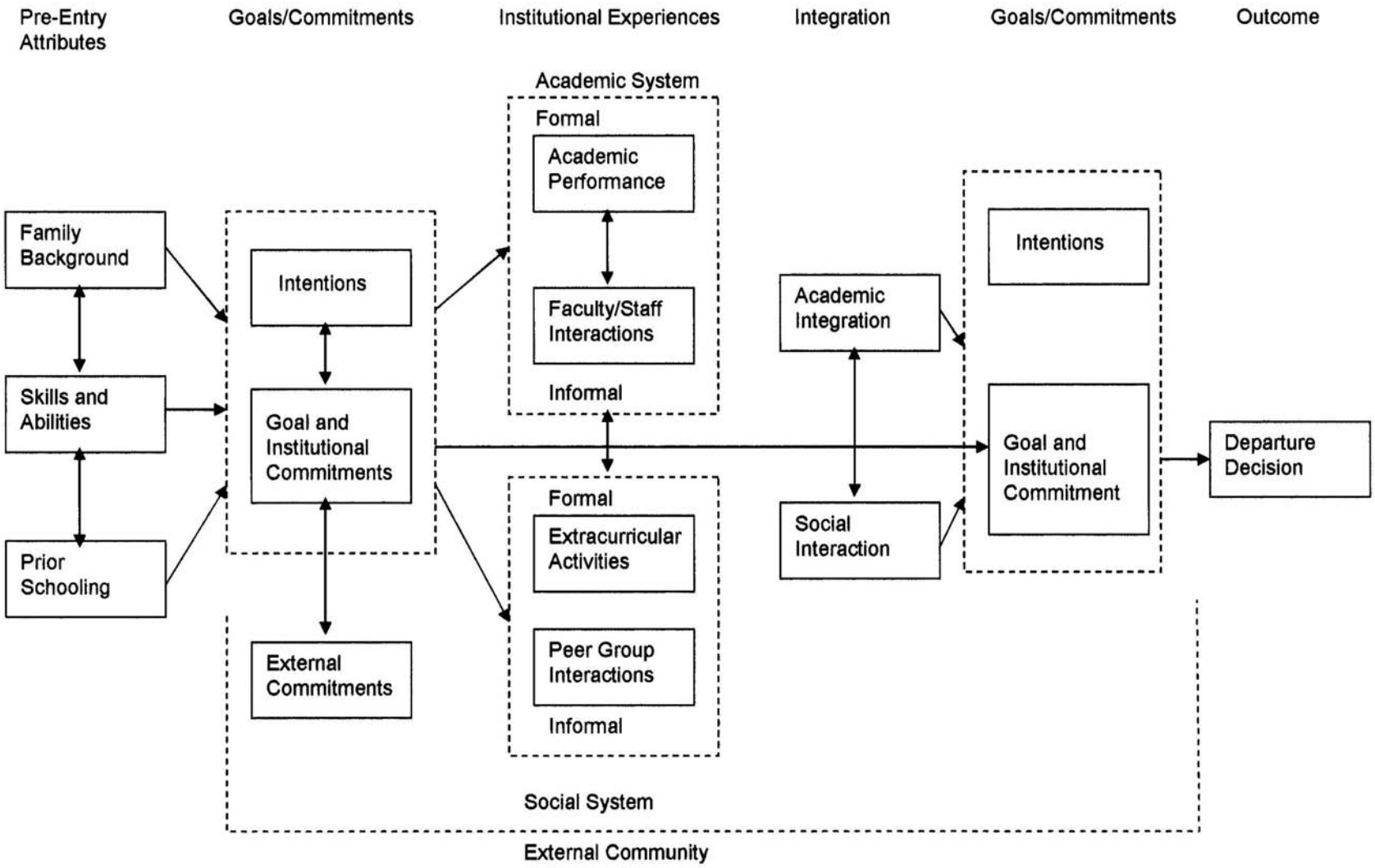

Figure 2. Tinto's Longitudinal Model of Institutional Departure (Tinto, 1993, p.114))

Bean's model

Unlike Spady and Tinto who based their theories on Durkheim's sociological theory and his discussion of suicide, Bean (1985) based his model of student attrition on theories of socialization. However, like both of the previously mentioned researchers, Bean's model included both institutional and individual parameters to estimate student dropout. Bean discussed *dropout syndrome,* rather than dropout, however, another difference in the three models. By this, he indicated "a conscious, openly discussed intention to leave an institution coupled with actual attrition" (p. 36). His reasoning was that, after controlling for intent to leave, there is almost no other variable relevant to the observed variance. In a direct comparison between his own model and Tinto's, Bean described the differences between the two thusly:

> The chief differences between this and Tinto's is that his includes (a) family background and individual attributes, which are assumed to be manifest here primarily in the psycho-social variables; (b) initial goal and institutional commitments, which here are assumed to be manifest in later institutional and goal commitments; (c) grade performance and intellectual development leading to academic integration, whereas in this model academic integration is viewed as a precursor of grades, and in this model; grades are expected to have a direct effect on dropout syndrome; and (d) the expectation that goal commitment and institutional commitment is expected to affect institutional fit, and institutional commitment and institutional fit are expected to directly affect dropout syndrome rather than dropout. (pp. 52-53)

In a major test of the model, Bean conducted a survey at a major Midwestern university in 1982. His model accurately accounted for 47% of the variance in freshman attrition, 35% for sophomores, 27% for juniors and 35% overall (p. 5).

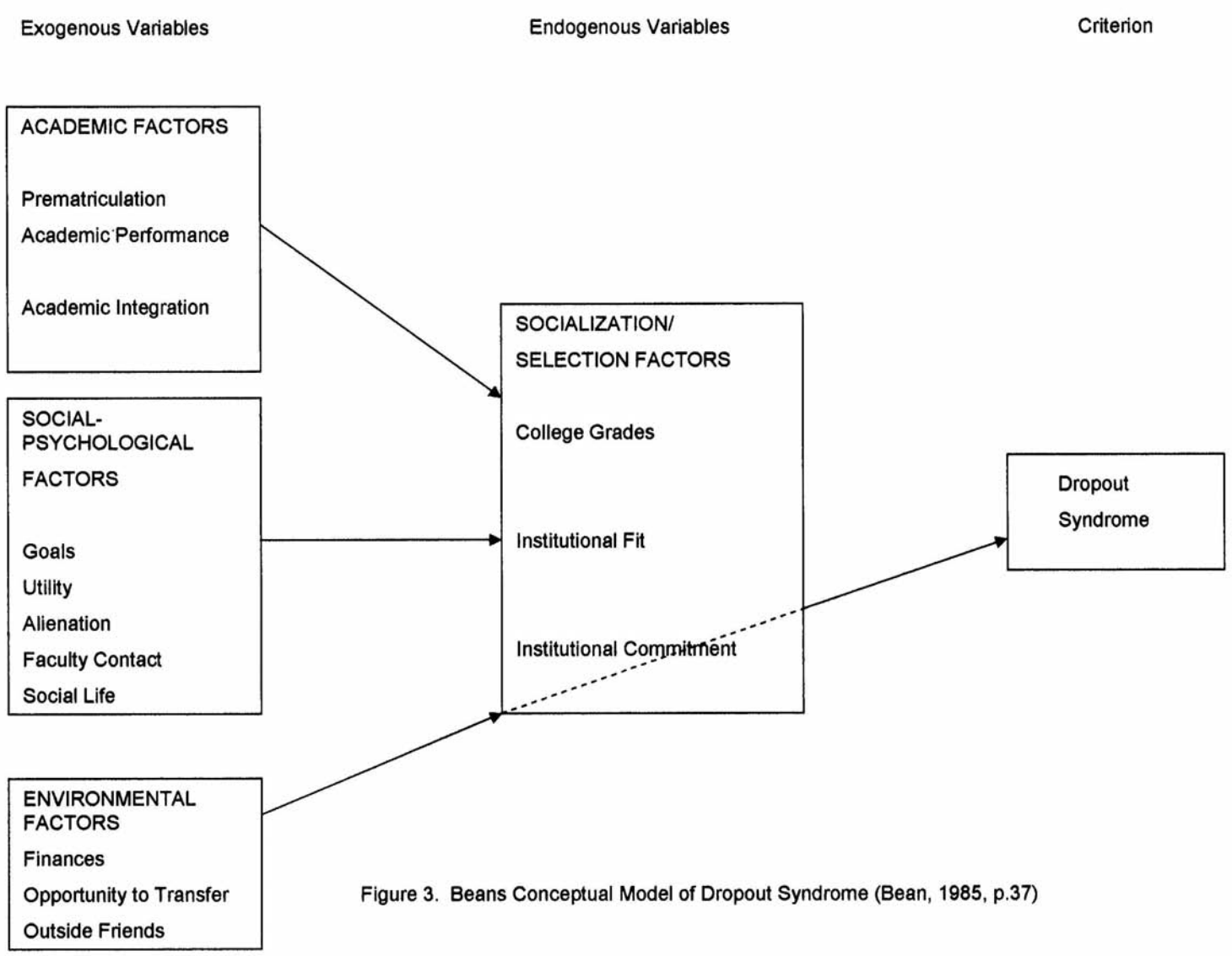

Figure 3. Beans Conceptual Model of Dropout Syndrome (Bean, 1985, p.37)

Criticisms of the models

Because both Spady's and Tinto's models are based upon Durkheim's comments on the phenomenon of suicide, we need to look at the baseline theory if we are to understand how it applies to attrition, and how it is operationalized in the study of higher education attrition. Durkheim treated the fact of suicide as a dependent variable, and used other social facts as independent variables to construct his theory (Kosky, 1998). The seductiveness of Durkheim's theory as it pertains to collegiate attrition is that "One conclusion that can be drawn from this social model of suicide is that everyone is prone to suicide, all individuals share the collective tendency of the population" (Kosky, p. 290). However, even the elemental theory of suicide put forth by Durkheim has been criticized, much less the analogies that utilize his theory as a take-off point. Kosky speaks of the difficulty with the definition of suicide; a trouble that exists equally in persistence and attrition studies; "The assumption that the suicide rate represents a social fact depends on whether or not there is everywhere a consistent definition of suicide" (p. 290). Kosky continues with his critique: "Secondly, there is the problem of choice of social forces. Out of all the potential social variables which affect individuals, which do we pick to compare with a social fact of the suicide rate? Durkheim chose certain statistical data. In doing so, he ignored other data." (Kosky, 1998, p. 290) Kosky's most telling criticism of Durkheim applies equally well to attrition research: "Any general theory of suicide needs to explain why one individual commits suicide and another does not." (p. 291)

In a study at a major urban commuter campus Nora and Cabrera (1993) combined elements of Bean's and Tinto's models to evaluate a construct they labeled "institutional commitment" drawn from what Bean described as "organizational commitment" and Tinto's "institutional commitment". A two-factor statistical analysis accounted for over 58.4 per cent of the variance in persistence, that is to say, those who did not depart the institution compared to

those who did . This result is particularly significant in the present study, in that the technical college in which this typology work is being done, is a commuter campus. In another similar comparative study, Allen and Nora (1995) took components of both models, naming a construct "Goal Commitment" which accounted for Bean's "encouragement from friends and family" variable and Tinto's "commitment to goal" variable. They deconstructed the variable into a three dimensional model of goal commitment, which, in a study at a medium sized institution in the Southwest accounted for 73.6 per cent of the variance in persistence. They thus validated a second significant component of both Bean's and Tinto's models.

Braxton, Milem and Sullivan, in a 2000 study, however, were only able to empirically validate 5 of Tinto's 13 propositions, with goal and institutional commitment among them (Braxton, Milem, & Sullivan, 2000).

In his book, *Reworking the Departure Puzzle*, Braxton (2000) looked at empirical studies conducted at multiple institutions and likewise at single institutions to investigate the evidence for Tinto's "Academic Integration" concept. In a review of a total of eight multi-institution tests, and twenty-eight single institution tests, he found statistically significant correlations between academic integration and subsequent institutional commitment in 75% of the multi and 64% of the single institution studies. In a similar comparison of the effect of academic integration on student departure, he found in a review of twenty multi-institution studies and thirty-nine individual institution studies, a statistically significant influence on departure in 75% of the multi-institutional studies and 51% of the single institution studies. His findings are significant in the following way: While looking at the constructs at four-year residential institutions, commuter institutions, four-year colleges and universities of unspecified type, and at community colleges (technical college's closest analogues), he found that "Appraisals made in unspecified types of four-year colleges and universities (eleven of twelve tests) yield robust affirmation for a

statistically significant relationship between academic integration and student withdrawal decisions. Those tests conducted in community colleges, however, offer modest support since two of the four tests made yielded statistically significant results" (p. 18). He goes on, additionally, to say that "tests conducted in commuter universities, residential colleges and universities and unspecified types of colleges and universities garner indeterminate empirical support" (p. 19). Further, when looking at single-institution studies, "None of these three types of institutional settings affords robust empirical support for a relationship between academic integration and student departure decisions" (p. 21). Because Tinto asserted that single institution tests were suitable to verify his constructs, if one is to be true to Tinto, we must reject the academic integration construct. However, according to Braxton:

> …nonresidential colleges and universities afford a rigorous test for academic integration. Put differently, if academic integration fails to demonstrate some effects in these institutional settings, then it is unlikely to do so in residential colleges and universities. Such a rigorous test was passed with strong affirmation. As a consequence, academic integration remains a viable construct worthy of reconsideration of its measurement" (p. 23).

For the purposes of this study, however, there appears to be little or no data to support the contention that the same processes that are operationalized in Tinto's theory as applied to two and four-year institutions are at work in technical colleges.

A British study (Brunsden & Davies, 2000) took a different approach to investigating the validity of Tinto's model. While nearly all the empirical studies that have investigated Tinto's model focused exclusively on verifying the sub-components of the model itself, the Brunsden & Davies study looked at the model as a whole. In a study of 264 university students, a survey was given to students in their first month after enrollment. At the end of the first year, the students

were grouped as voluntary dropouts (which included students who stop out but then restart at a later time, and were thus grouped in the dropout category), involuntary dropouts, and persisters. A detailed statistical analysis indicated that the Tinto model as a whole failed to provide an acceptable description of the data. The authors attribute this dichotomy in their results not coinciding with the general consensus of the other studies to an inability to rigidly define the variables under study. Rather, each researcher is left to operationalize the variables in a way that they can be measured; each researcher must find his or her own way to do this. The result is that since the variables are operationalized differently, the results may differ markedly.

Pascarella and Terenzini (1979) looked at 25 variables extracted from Spady's and Tinto's models. While various studies had had relatively greater or lesser success in predicting dropout, instead of looking at the variables themselves, this study looked at the interaction effects between the variables. When 12 interactions were investigated, the study accurately predicted 85% of male dropout and 88.06% of female dropout in the sample studied.

What can be seen most clearly from reviewing the major theories of attrition is that dropout in two and four-year colleges and universities can indeed be predicted (at least in large groups), and that attrition can in fact be attributed to the identified characteristics of students, their social and academic integration at the institution and the interaction of these characteristics. The question remaining to be answered, however, is "Do the same characteristics and processes work in the same way in technical colleges?" The answer to this question will lead us to an understanding whether the forces acting on technical college students are operationalized the same way they are for students of other kinds of institutions.

Attrition Data Correlations

Differences between four-year college and two-year or technical college students

In order to understand student departure behavior, it is important to put the post-secondary student population into context. While clearly most of the data collection on early student dropout was performed at four-year schools, an interesting aspect of the current research is determining whether the reasons that technical college students give for dropping out are the same as for their four-year college colleagues. Of note are the several differences in the two populations that give rise to the question, "Since the two populations are so different, is it reasonable to assume that their reasons for dropping out are the same?" Table 1 compares two-year and four-year college student characteristics (U.S Department of Education, 2002) (pp. 193-194), and includes comparable data from the Georgia Department of Technical and Adult Education for the same time period.

Selection of elements that correlate with dropout

Numerous studies have investigated which specific factors should or might be used to estimate or predict attrition among college students. Some studies declare that their findings are relevant, while others, like Bean (1985), take a more modest approach when he states "It is always tempting to believe that one has invented the wheel when most studies may be more akin to polishing spokes" (p. 48). Nevertheless, it is important to review many studies to attempt to resolve from the many results those elements most closely related to student attrition.

Student Characteristics	Four-Year Colleges	Two-Year Colleges	Georgia Technical Colleges
Sex			
Male	44.7%	43.7%	41%
Female	55.3%	56.3%	59%
Race/Ethnicity			
White	71.6%	67.2%	53.7%
Black	11%	13.4%	39.9%
Hispanic	10.8%	13.0%	1.8%
Average Age	24.2	28.9	*
% Independent	37.3	63.7	*
Single Parent	9.0%	16.4%	*
Employment			
Full-time	26.4%	53.8%	*
Part-time	50.7%	30.4%	*
None	22.9%	15.8%	*
College Attendance			
Full-time	68.5%	30.5%	40.8%
Part-time	31.5%	69.5%	59.2%
Delayed Entry At Least 1 Year	32.2%	58.7%	*
High School Attainment			
H/S Graduate	97.3%	90.0%	53%
GED	2.1%	7.9%	9%
Completion Certificate	0.2%	0.4%	*
No credential	0.3%	1.7%	26%

Table 1: Extracted from: Table 35-1 Percentage distribution of undergraduates according to selected student characteristics, by institution type: 1999-2000 (p.194) and from GDTAE data. (Note: * = data not available)

Juola (1964) looked into the relevant predictive value of the Michigan State University Test of Reading Comprehension and the College Qualification Test scores of students. She found that both tests were predictive of a student's inability to succeed academically (p.36).

Blanchfield (1971) determined that the Social Consciousness test score and percentage of college costs financed by grants were relevant to attrition. He determined that "successful students have a greater concern for social issues which is reflected in their greater persistence in college; also that successful students have a higher percentage of grants than unsuccessful students. High school rank proved significant, while high school average did not." (p.3)

Bryan and Erickson , in a study of high school students (1970) determined that academic plans and educational plans of the student were predictive of dropout behavior.

An article by Brawer (1996) synthesized a number of studies done with community college students and found that full- or part-time attendance, age, employment status, grade point

average, being a member of an ethnic minority other than Asian, family obligations, financial concerns and gender had all been found to be correlated to persistence.

Snell and Mackies, (1993) however, found that among age, race, socio-economic status, sex, population size, GPA, hours worked per week, and perception of college, only grade point average, hours worked per week and perception of the college were viable indicators of persistence in two year colleges. They concluded, "Successful community college transfers will have a strong high school GPA, will be unencumbered by outside work demands, and will feel positive toward their host two year school" (p. 258).

Snell and Mackies (1993) cited their finding that "age, gender, family income, social status, hometown location and size of high school do not have a demonstrated significant difference in attrition rate" (p.256). They also stated "high-school GPA, class rank, scholastic aptitude appear to be variables to college achievement but not to college persistence" (p. 257).

Liu and Liu (1999) described relevant factors in a commuter college setting. Among the variables grade point average, sex, race, native freshman versus transfer student, and age, in their study only age, race and transfer status were significantly correlated with persistence or attrition.

A comprehensive review of 158 variables across 16 Technical colleges in South Carolina (Wyman, 1997) found that the most reliable indicators of persistence were employment rate in the area and spending per capita on academic support, which predicted fully two-thirds of the variance of student retention.

Studying community colleges, Turner (1970) found that "Student-related factors involve an interplay of actual and perceived ability, family and school background, and motivation. College-related factors begin with the student's introduction to the school and depend on his adjustment to faculty, curriculum, and school mores."

Pascarella and Terenzini (1979), in studying interaction effects, looked at 25 variables to determine their relevance to attrition. These variables have formed the basis of much of the later research, and, while they include many of the demographic elements found in other studies, they also looked at several other characteristics not commonly included by other researchers. These latter elements focus closely on the integration of the student into the "culture" of the college and have become important elements of study.

Wetzel, O'Toole and Peterson (1999) found that academic and social integration as in the Tinto model were indeed important, and interestingly, in discussing how to improve retention suggested that "One relatively obvious alternative is to admit better students, who will be more likely to do well and hence stay in school." Although this may be an argument in favor of the more selective universities, it is very doubtful that the suggestion has much appeal in an institution with open enrollment, as in Georgia's technical colleges.

Johnson (1997), looked at seven variables among commuter students, to determine if academic climate, social integration, beliefs, cumulative GPA, gender, age and remedial course status were relevant to dropout. She determined that:

> Academic and social integration is important not only for residential students but also for commuters. A sense of community appears to be very important to the retention of students, regardless of their on-campus or off-campus residential status. Based on the findings, it appears that academic climate is the variable around which efforts should be made. Specifically, the findings of their study suggest that staff-and faculty-student interactions and connections, with special attention to female students is an important area on which to focus. (p. 332)

What is most easily seen from the foregoing discussion is that there are vastly differing ideas about what causes or prevents student attrition; that, as indicated by Tinto, Bean and others,

attrition is a complex matter with innumerable potentially causative factors; and as indicated by Pascarella and Terenzini, with significant interactions among the various factors. Vast amounts of scholarly research performed by reputable investigators returns so much data that it is nearly impossible to review all of it. The central theoretical constructs that emerge, however, confirmed time after time within the context of two and four-year institutions, but not yet for technical colleges, would seem to include Academic and Social Integration, Institutional Fit, and Goal Commitment. These parameters exist within the framework of students who bring to the institution predictive background variables that include their high school GPA, their parents' educational level, their socio-economic status, employment status, as well as age, race and gender. What becomes very clear is that in order to establish a predictive model, the factors used to determine persistence must be carefully analyzed and correlations carefully considered. Table 2 contains a compiled comparison of variables included in various published research over a number of years. From this table, it is possible to derive a relatively comprehensive list of variables that have been shown to have strong correlations to dropout in two and four-year colleges and universities. It makes perfect sense to attempt to measure these variables in technical college's student populations, to verify or deny whether or not the same processes actually pertain in the technical college setting.

Towards a modification of Tinto's Theory

When considering how past research impacts upon the current questions under study, it is important to note not only the variables previous researchers used to arrive at their conclusions, but the context in which the research was conducted as well. A potentially critical set of differences exists across the various kinds of institutions in which the research was performed. Cope (1978) described the situation succinctly:

Researcher	Date	Affiliation	Title of article	List of variables studied	Implication
Allen, D and Nora, A.	1995	University of Illinois at Chicago	An empirical examination of the construct validity of goal commitment in the persistence process	Confirmatory factor analysis revealed that goal commitment could be decomposed into multiple indicators of the same construct, a special factor that groups factors related to goal importance, specificity of goals, and situational influence. Two other factors were additionally related to goal commitment, but neither was as predictive as the first construct.	Goal commitment was found to have a significant effect on intent to persist and actual persistence, the other two factors were not as predictive.
Andreu, M.	2002	Chipola Junior College, Marianna Fl.	Developing and Implementing local-level retention studies: a challenge for community college institutional researchers	Gender, ethnicity, birth year, zip code, h/s diploma, GED, dual enrollment, first term enrollment status, last term enrolment status, first term financial aid, first term total aid, number of major changes, number of advisor changes, cumulative GPA, number of terms attended, first term social integration, total terms of participation in social integration classes, number of remedial classes, disability status	List of variables may be of utility in studying dropout
Astin, A.	1975	UCLA	Preventing students from dropping out	H/S GPA, H/S rank, SAT, academic rating of H/S, religion reared, religion now, father's education level, mother's education level, financial concern, race, urban or rural rearing, educational aspirations, study habits during past year, expectations about college, sex, age, smoker, varsity letter in H/S, marital status, sources of financial aid, work status, place of residence Freshman year	Greatest predictive factors: student's past academic record and academic ability. Next are student's degree plans, religious background, religious preference, college finances, study habits and educational attainment of parents.

Table 2: Selected studies demonstrating retention data correlations

Attinasi, L.	1989	University of Houston	Getting In: Mexican American's Perceptions of University Attendance and the Implications for Freshman Year Persistence	Persistence behavior is the consequence of a process in which the student is an active participant: He or she takes account of various things in his or her everyday world and acts on the basis of how he or she interprets them. Persistence behavior is related to the manner in which the university becomes and remains, through everyday social interaction, a reality for the student.	1) Effects of background variables on persistence in college are mediated by significant-other influences 2) The extent and nature of anticipatory socialization for college going has an influence on the decision to go to college, but once there, on the decision to stay 3) The extent to which social integration influences persistence is the extent to which it endows the individual with the capacity to cognitively manage the university environment 4) Persistence is positively related to development and use of cognitive maps of physical, social, and academic geographies.
Bean, J.	1985	Indiana University	Interaction effects based on class level in an explanatory model of college student dropout syndrome	The factors college grades, institutional fit and institutional commitment were found to be important predictors.	Socialization appears to occur more as a result of peer interaction than informal faculty interaction; students may play a more important role in their own socialization than previously thought; college grades seem more a result of selectivity than socialization.

Braxton, J. Milem, J. Sullivan, A.	2000	Ohio State University	The influence of active learning on the college student departure decision	The study confirmed 5 of Tinto's 13 primary propositions: Student entry characteristics affect initial institutional commitment. Initial commitment influences subsequent commitment, which is positively influenced by student integration; the greater the commitment, the greater the likelihood of persistence. Social integration is then deconstructed into elements of "active learning".	Two of four active learning variables were statistically significant—class discussions and higher order thinking activities. Group work and knowledge-level testing fail to exert reliable effects on social integration.
Brinkerhoff, E.	2001	U. Massachusetts, Amherst	A study of factors that contribute to adult undergraduate student success at the University of Massachusetts, Amherst	Commitment to the educational goal and support from others were the two main factors motivating adult students. Internal and external rewards and individual and group support inside and outside the college were important factors.	Faculty-student interaction was both a support and an obstacle. Confidence in ability to complete degree goal was also an important factor.
Brunsden, V. Davies, M.	2000	Nottingham Trent University, U.K.	Why do HE Students Drop Out? A test of Tinto's Model	Tinto's model was tested using path analysis using maximum likelihood estimation. Students were given the Eysenck Personality Inventory, the Rosenberg Self-Esteem Scale, the Satisfaction with Life Scale, and additional questions added by the authors	The model does not provide an acceptable description of the data.

Burley, H., Butner, B., Cejda, B.	2001	Texas Tech University	Dropout and stopout patterns among developmental education students In Texas community colleges	Major, dropout/stopout pattern, number of diagnosed learning deficiencies, age, ethnic group, gender, enrollment in mathematics remediation, hours enrolled in fall 1992 (cohort under study)	Best predictor of persistence was existence of entering learning deficiency; best predictor of continuous enrollment was age.
Cambiano, R. Denny, G. DeVore, J.	2000	Univ. of Arkansas	College student retention at a Midwestern university: A six-year study	High school GPA, ACT Scores, age, gender	High school GPA and ACT score were good predictors; gender was a predictor until the 9th semester, at which time it no longer was a predictor. Age was only a predictor for the first 3 years, thereafter, it was not.
Chen, S. Thomas, H.	2001	Dahan Inst of Technology, Taiwan and Florida State Univ.	Constructing vocational and technical college student persistence models	Academic integration, social integration, parental education, gender, SAT/ACT, Gym Grade, Major Department, Housing, Guidance program, remedial program	1st semester GPA, gender, entrance exam scores, department, social integration, gym grade, guidance program, were predictors. Parents' ed level was not, housing was not
Cofer, J. Somers, P.	2001		What Influences Student Persistence at Two-Year Colleges?	This study looked at background (ethnicity, gender, age income, marital status, mothers and fathers ed levels, and financial dependency), aspirations and achievement (degree level, SAT/ACT), college experiences (type institution, GPA, class standing, residence, hours worked, attendance intensity), current year price and subsidies (tuition, fees, grants, scholarships, loans and work study), and debtload.	3 non-financial variable were negatively associated, and 4 were positively associated with persistence: ethnicity = "other" were more likely to persist; financially dependent were more likely not to persist, those w/ aspirations for bachelors or higher degree were more likely to persist. Soph. more likely than freshmen to persist, working full time and low GPA less likely to persist.

Pascarella, E. Terenzini, P.	1979	Univ of Illinois, SUNY at Albany	Interaction Effects in Spady's and Tinto's Conceptual Models of College Dropout	Sex, race/ethnic origin, program of enrollment, SAT, High School percentile, number of H/S extracurricular activities, expected number of contacts w/ faculty, parents combined annual income, mother and father's combined education level, student's highest academic degree expected, importance of graduating from college, rank of this school as a college choice, pre-enrollment confidence that this was the right choice of college, freshman GPA, academic and intellectual development, faculty concern for teaching, informal contacts with faculty, extracurricular activities, peer group relations, institutional goal commitment as measures of *voluntary withdrawal*	Six significant interactions for females, five for males: for females-parents education with faculty concern for teaching, importance of graduating with faculty concern for teaching, and peer group relations, peer group relations with contacts to discuss intellectual matters and with institutional goal commitment, informal relations with faculty and faculty concern for teaching, and with contacts to obtain information. For males, parents ed level with contact to discuss career issues, highest expected degree with freshman GPA, program of enrollment with peer group relations, institutional commitment with contact to discuss intellectual issues, academic development with faculty concern for teaching.
Pengitore, F.	2000	George Washington Univ	An Analysis of Student Persistence in a Two-year Proprietary Technical College Using Houle's Typology of Learner Orientation	Data collection instruments measured learner orientations of activity oriented, goal oriented, and learning oriented.	Persistence rate is not consistent across programs of study or length of enrollment; learning oriented students persisted best, followed by goal oriented then activity oriented.
Rugg, E.	1982	Kennesaw College, GA	A longitudinal comparison of minority and nonminority college dropouts: Implications for retention improvement programs	Continuous enrollment, last semester enrollment, race, ACT scores, grades	After controlling for academic ability, voluntary attrition is greater for nonminorities than for minorities

Cokley, S.	1998	Clemson University	The Relationship Between Student Characteristics, Program of Study and Retention at a South Carolina Community College	Age, gender, race, enrollment status, academic preparation, GPA and level of commitment looked at to see if they would predict program of study and retention	No significant correlations to predict program of study, but age, level of commitment, GPA and enrollment status were significant predictors.
Colwell, S.	1988	University of Connecticut	The relationship of intellective and demographic variables to the academic performance and persistence of technical college students	SAT, high school rank, units of math and science taken in H/S, Math and science grades, program of study, gender; variables assessed against college GPA and dropout status	Voluntary dropouts performed as well on college grades as persisters, demographics of persisters and voluntary dropouts showed no significant correlation; SAT verbal, number of H/S math and science units and H/S GPA were not correlated to voluntary dropout
DuBrock, C. Fenske, R.	2000	Arizona State University	Financial Aid and College Persistence: A Five-year Longitudinal Study of 1993 and 1994 Beginning Freshmen Students	Amount of financial aid, , amount of debt, type of debt, compared to demographics, precollege attributes, college experience factors	Receipt of aid influenced persistence in 2d to 3d year, amount of aid significant in 1st thru 3d years, as amount of debt increases, so does persistence, but unsubsidized debt was negative for persistence
Hardgrave, B.	1989	Univ. of Northern Colorado	Admissions Procedures that Predict Retention of Newly Arriving Freshman Students at a Middle-Sized Community College	Date of application, an admissions orientation session, new student orientation, college assessment and summer incentive program were evaluated for persistence	Date of application was the only significant predictor—it relates to motivation and goal orientation
Johnson, J.	1997	Univ of Southern Maine	Commuter College Students: What Factors Determine Who will Persist and Who will Drop Out?	Academic climate, social integration, student beliefs, cum GPA, gender, age, remedial status were compared for persistence or dropout	GPA, student beliefs, academic climate and gender were significant predictors

Kern, C., Fagley, N., Miller, P.	1998	University of North Texas	Correlates of college retention and GPA: learning and study strategies, testwiseness, attitudes and ACT	Score on Gibb experimental test of testwiseness, Learning and study strategies inventory (LASSI), Intellectual achievement responsibility questionnaire (IARQ), enrollment status, GPA	Attrition is more strongly correlated to motivational self-ratings than to learning and study skills
Lamgemo. T.	1990	University of Alabama	Factors related to improving student retention in selected two-year technological institutions as perceived by administrators, faculty and students	Attitudinal survey of faculty, staff and student impressions of outreach, recruitment, assessment, preparation, orientation, integration, maintenance and separation programs at two, two-year colleges	Significant differences between staff, faculty and students in terms of effectiveness of these programs in preventing dropout
Li, G. Killian, T.	1999	Univ of Missouri, Columbia	Students who Left College: An Examination of Their Characteristics and Reasons for Leaving	Ethnicity, Gender, Student level, Received Loan, ACT, High School percentile, and qualitative reasons for leaving were compared for 622 students across all four years of the university population	Ethnic differences were significant, but accounted for only 1% of the variance; high school percentile rank and ACT were related to retention; loans were negatively associated, gender and gift aid were not related to retention
Liu, E. Liu, R.	1999	Northeastern Illinois University	An Application of Tinto's Model at a Commuter Campus	GPA, Sex, Race, native Freshman vs. transfer student, age, were compared as predictors of dropout	No significant difference based on sex; race and age, as well being a transfer student were predictive of persistence

Lombard, R.	1992	University of Minnesota	Persistence of nontraditional students in a two-year college: A test of the Bean and Metzner model	Age, gender, enrollment status, distance from college, recency of education, educational goals, prior educational experience, high school credential, stop out behavior, high school GPA, Marital status, study hours, study skills, academic advising, absenteeism, major certainty, course availability, orientation experience, finances, employment status, outside encouragement, family responsibilities, opportunity to transfer, faculty contacts, school friends, distance from campus	Intent to leave is strongest predictor of leaving; then in order of precedence: dropouts have higher absenteeism rates, lower 1st semester GPA, fewer friends at college, higher expectation of transferring to another college, not married, employed, older, have dropped out before, have financial concerns
Martin, W. Swartz-Kulstad, J Madison, M.	1999	Univ of Wisconsin, Superior	Psychosocial Factors that Predict the College Adjustments of First-Year Undergraduate Students: Implications for College counselors	Sex age, ethnic background, academic self-confidence, positive attitudes towards the university, social life, parental and peer and faculty support, personal difficulties were compared to adaptation to college as measured on a standard instrument	"Measures of academic self-confidence and positive attitude toward the university significantly predicted more successful adjustment to college as measured by the SACQ Full Scale scores"

Rummel, A. Acton, D Costello, S Pielow, G.	1999	Alfred University	Is All Retention Good? An Empirical Study	Collected data on reasons students gave for leaving prior to graduation	Reasons included transfer to another school, financial problems, medical problems, personal reasons, married, university dropped student, academic reasons, no reason given
Sagy, S.	2000	Ben-Gurion University of the Negev	Factors Influencing Early Dropout: The Case of Russian Immigrant Students attending an Israeli University	Tinto's model was tested to see the level of contribution of the concepts of social and academic integration and their influence on Russian immigrant student persistence patterns	The model accounted for only 29% of native dropout, but 63% of immigrant dropout. Social integration failed to be significant in either group. Suggested that Tinto's model needed modification to account for cultural differences.
Schwartz, S.	1989	University of Minnesota	A study on student persistence-attrition in Minnesota technical institutes	Age, sex, ethnic origin, special needs status, marital status, household income, household size, living arrangements, parental occupations, parental education level, financial aid status, high school grad or GED, highest grade completed, prior postsecondary experience, number of months of full-time employment, work experience related to program area, number of hours per week worked	Gender, financial aid, number of hours per week worked, H/S graduation or GED, and highest grade completed were significant predictors. None of the other variables were significant predictors.
Street, M.	2000	Texas Tech University	The effects of early, regular, and late registration on student success in community colleges	Success rates of community college students were compared to when they registered, whether early, regular or late registration	Late registrants were less likely to persist than were either early or regular registrants. Differences in withdrawal rates were also significant for both new and returning students. Late registrants were over twice as likely to withdraw as early or regular.

Szelenyi, K.	2001	ERIC Digest	Minority Student retention and academic achievement in community colleges. ERIC Digests	Parental influence, inability to find a job, desire to gain a general education, desire to improve reading and study skills, desire to become more cultured desire to learn things that interested them, getting a better job and making more money were studied as reasons for attending community college.	Minority students were more likely than white students to report that parental influence, inability to find a job, desire to gain a general education, desire to improve reading and study skills desire to become more cultured and desire to learn things that interested them were most important. Family and academic support factors were important to minority student success.
Terenzini, P. Pascarella, E.	1994	SUNY at Albany Univ of Illinois,	Living with myths: undergraduate education in America	A number of myths about education in America were discussed in relation to undergraduate students	"a majority of the important changes that occur during college are probably the cumulative result of a set of interrelated and mutually supporting experiences, in class and out, sustained over an extended period of time" (p.31)
Thomas, S.	2000	University of Hawaii at Manoa	Ties that bind: a social network approach to understanding student integration and persistence	Commitment to goals, confidence in choice of college, expectations for the first year; follow up collected names and dimensions on which students communicated and related to each other	The structure of student networks within the college experience can be used to analyze persistence behavior within framework of Tinto's model of student integration.
White, W., Mosely, D.	1995	Lamar University, TX	Twelve year pattern of retention and attrition in a commuter type university	Number of academic courses ("solids") taken in high school, GPA in those courses, total high school GPA, high school rank, total SAT score	Best predictor of retention is number of H/S "solids" and their GPA, followed by H/S rank

> Dropping out has been shown to involve an interaction between an individual and an institution. The student likely to drop out of a "progressive" liberal arts college may be different from the dropout from an "evangelical" college (Cope and Hannah, 1975). Data that ignore the institutional context will rarely be useful or generalizable to other institutions. (p. 3)

Tinto, himself, writing in his 1993 edition, states,

> Similarly, it is not a foregone conclusion that existing explanations of student departure from high school can also serve to explain the withdrawal of individuals from higher education institutions…. There are enough significant differences between the two situations to limit the usefulness of the analogies which might be drawn from studies in either setting. (Tinto, 1993, p. 91)

By extension, one could conjecture that there is also sufficient difference between the technical college and other two and four-year institutions as to limit the effectiveness of the "analogies which might be drawn from studies in either setting," to further repeat Tinto's words.

In his book, *Reworking the Student Departure Puzzle*, Braxton (2000) compiled the work of several researchers to reevaluate Tinto's Interactionist theory in light of current research. A consideration of the technical college population, in view of this compilation, is instructive for evaluating the applicability of past research to that population.

Financial Considerations

Based on information from St. John, Cabrerra, Nora and Asker (2000), it would appear that the preponderance of research on the influence of financial matters on the decision to drop out are principally considerations of student financial aid. In the current study environment, however, as previously referenced, over 76% of the students receive financial assistance in the

form of the HOPE grant or scholarship or the Pell grant, or both, so one would not expect to see major differences in the dropout rates of this population merely on that basis. If the consideration of financial pressures on students to prematurely drop their programs of study were solely a matter of financial aid, further review of this issue would be of little use. Tinto's consideration of finances appears to reduce the discussion to a "marginal issue": "the evidence suggests that the effect of finances upon departure is frequently subsumed within decisions as to choice of college. It appears, for many but by no means all students, to operate at the margin rather than at the center of decision making regarding persistence" (Tinto, 1993, p.83).

However, one must ask oneself if all of the data collection processes upon which much of the research is based are entirely accurate, or possibly even valid. A recent U.S. Department of Education report which looked at student background and institutional differences in reasons for early departure for the years 1996 through 1998 reported that for 58.1% of students of public two-year colleges, the stated primary reason for enrolling initially in their program was "job skills". This might lead a thoughtful researcher to conclude that the financial future of the students was a significant consideration in their selection of the educational program, or perhaps the institution. Comparing the same data collection to four-year public institution students, however, the question of primary reason for enrolling was not even asked (Bradburn, 2002). Furthermore, as the report describes, "students without nontraditional characteristics (who are more often found at 4-year institutions) who left were more likely than students with nontraditional characteristics to indicate that they left because they needed to work, a reason cited more often by students from public 2-year institutions" (p. 63). Nothing in this discussion appears to have anything to do with financial aid delivery or qualifications for financial aid.

In their discussion on postsecondary pricing policies, Hearn and Longanecker (1996) point out that "Though the studies disagree somewhat in their estimates of how students from

various incomes would respond to rising prices, all studies suggest that family income is inversely correlated with responsiveness to price". (pp. 277-278) Since the general population demographic of the technical college includes a significant number of students from low income families, as indicated by the number of Pell Grant recipients, financial impacts could be predicted to have a significant role to play in the decision to drop out prematurely. One should further be able to predict that as family income goes down, sensitivity to financial issues would increase, and that a significant correlation between family income and dropout would exist.

The Psychological Model

As indicated previously, much of the early retention research was conducted from a strictly psychological model. Even today, the debate goes on: Is retention a psychological or sociological phenomenon? Tinto's attitude is that psychology does not provide sufficient basis for understanding of the phenomenon. He states, "Because it has largely ignored the impact context may have on student behaviors, the psychological perspective does not provide a suitable model of departure for either institutional research or institutional policy" (Tinto, 1993, p. 86)

In answer, Braxton's experts seem to agree, even while offering a psychological model of their own: "Psychological approaches to the study of student retention have been proffered, but a consistent psychological approach to retention has not been developed" (Bean & Eaton, 2000)

Eventually, they arrive back at Tinto's theory, seeming to agree, at least in principle, with his basic elements of the Interactionist theory, while attributing much of the process leading up to the conclusions as being psychological:

> Students enter college with a complex array of personal characteristics. As they interact within the institutional environment several psychological processes take place that, for the successful student, result in positive self-efficacy, reduced stress, increased efficacy, and internal locus of control…these processes in turn lead to academic and social

integration, institutional fit and loyalty, intent to persist, and to the behavior in question, persistence itself. (Bean & Eaton, 2000)

Because psychology deals with individual behavior and this research effort attempts to predict individual retention or attrition, it would seem that a psychological approach might be warranted. However, going back to Tinto, it is doubtful that that approach would be productive:

> Though it is obvious that individual personality must affect individual departure, we have yet to discern anything resembling a "personality of departure." To date, our constructs of personality have yet to capture in a reliable fashion specific attributes which underlie individual responses to experiences within different institutions of higher education. (Tinto, 1993, p. 83)

In spite of Tinto's assertion that there seems to be no "personality of departure", it does seem appropriate to consider that since individual motivation, goal commitment and goal orientation are individual psychological factors, that psychology must be factored into the departure equation. Add to the mix the obvious extension of the impact that background variables must have in terms of the expectations of family and friends, and we find a serious level of psychological force that must be accounted for if we are to arrive at anywhere near an appropriate understanding of the attrition/persistence decision making process. Baird (writing in Braxton, 2000) says it this way:

> We can extend this line of reasoning to argue that many of the variables in the Tinto model can be seen to operate intrapsychically. Goal and institutional commitments are personal statements of intent; social and academic integration can be viewed as the psychological consequences of interactions with the institutions' systems. In the more recent versions of the model the significance of external commitments would lie in students' perceptions of the degree to which they help or hinder their educational

> progress. This view is consistent with Stage's (1998b) psychological orientation to college outcomes. By focusing on the internal perceptions as the locus of the model, we are also reflecting the unit of analysis usually used in empirical studies of the model, the individual student. (Baird, 2000, p.63)

External Influences

Tinto (1993) admits that external forces "may be particularly important" (p. 109) in nonresidential colleges, and among working students, which describes technical college students succinctly. He states, "For many such students, going to college is but one of a number of obligations they have to meet during the course of a day. In these situations, the demands of external communities and the obligations or commitments they entail may work counter to the demands of institutional life"(p. 109). He continues: "When the academic and social systems of the institution are weak, the countervailing external demands may seriously undermine the individual's ability to persist until degree completion. In a very real sense, students may be 'pulled away' from college attendance" (p.109).

In the case of Georgia's technical college students, Tinto may have hit the nail squarely on the head. The colleges are open-enrollment, thus non-selective. All but two are commuter-only campuses, with only limited opportunities for social engagement as a part of the college experience. The students on average are older (usually considered adult students) and thus have greater family and work obligations than the younger students frequently making up the freshman class at four-year institutions. Thus, the external forces impacting on technical college students have an even greater affect than they might otherwise. According to his own longitudinal model, then, Tinto makes the case for a significant component of attrition in the technical colleges being assigned to external forces.

Toward a New Theoretical View of Attrition in Technical Colleges

When taken in combination, Tinto's model, while it has been demonstrated to account for a considerable portion of the attrition of students in two and four-year colleges and universities, just doesn't appear to fit the technical college situation with as much precision. While the individual concepts and propositions of the Tinto model clearly still apply, a small reshuffling of the model's linearity, and a little tinkering with the level of influence that he ascribes to each proposition would seem to describe the technical college situation more closely. Numerous researchers have described the correlations of the background variables of students to dropout behavior (see table 2). One might argue that background variables establish individual expectations and a perceived ability to succeed in the technical college. When these variables are combined with a psychological component comprised of the student's goal orientation, motivation and commitment to the objective of attaining the technical college benefits, they comprise another construct that might be understood as a propensity to persist. This propensity might be indexed to some theoretical value, perhaps ranging from a negative to some positive value. Thus, the background and psychological components together establish a latent likelihood of persistence, one way or the other. When the propensity to persist is passed through the filter of external factors, its relative weakness or strength is either reinforced or overcome entirely. In the latter event, the student makes the departure decision early in their academic career. If the external forces subsequently weaken or subside altogether, the student may re-enter the college and successfully complete their chosen program of study. If the external forces are not strong enough to initially overcome the basic propensity to persist, the academic and social integration aspects of the college experience engage, and the student's propensity to persist is reinforced if the experiences are good, or if not, the propensity is neutralized. In the former circumstance, the student goes on to complete their course of study, and in the latter event, they depart. This

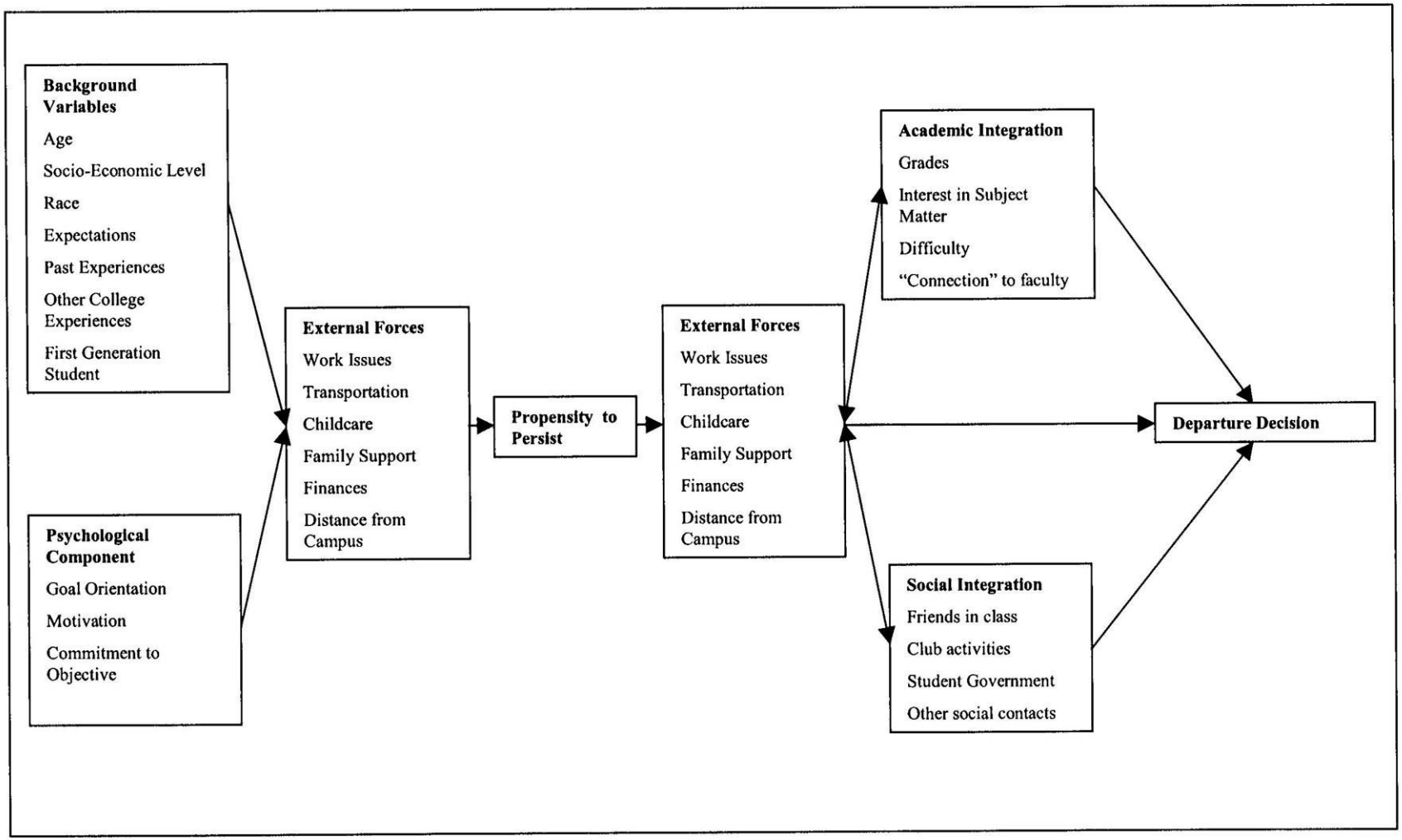

Figure 4: A modified model of student attrition at Technical Colleges

concept of neutralization of the propensity to persist can explain why some students from poor backgrounds persist, while some with more enhanced backgrounds do not. It also demonstrates that what happens after matriculation into the system is more important than the background that a student brings with them to the college. Although he stated it another way, Tinto would appear to agree with this analysis:

> In this instance, external commitments are seen as altering the person's intentions (plans) and goal and institutional commitments at entry and throughout the college career. And they do so in a manner that is largely (but not entirely) independent of the internal world of the institutions. (Tinto, 1993, p. 115)

The Development of Typologies

Most attrition research has focused on traditional students in the "classical" college setting—that is,19 and 20 year old full-time students living in residence halls, for the most part. This study undertakes to identify and simplify the complexities of the same process in a commuter-only, technical college. The students in this environment, their motivations and circumstances are different enough that an alternative way to look at the issues is warranted. One such alternative is to group the students by similar characteristics. This process is known as creating a typology.

Scanlon's review of the research

In 1986, Craig Scanlon published a monograph that synthesized the research on deterrents to adult participation in education. He arrived at the following conclusions:

> Notwithstanding differences in their theoretical context, psychosocial orientation and application, the existing models, paradigms, and theories of participation share two general assumptions: (1) participatory behavior is a function of the interaction of both

individual and environmentally determined variables, and (2) such variables may interact so as to enhance or inhibit the likelihood of participation. (Scanlon, 1986, p.12)

Scanlon might well have been discussing the state of research on premature departure from higher education. His summary precisely states the case not only for deterrents to participation in adult learning activities, but for the dropout problem as well. However, Scanlon went on to even more closely delineate the case:

> In regards to deterrents to participation in adult education, inferences synthesized from the various theoretical perspectives support several more specific assumptions:
>
> (1) The deterrents concept probably constitutes a multidimensional construct.
>
> (2) The dimensions of the construct may include groupings of psychologically, socially, and environmentally determined variables.
>
> (3) Deterrents to participation themselves (the structural component of the construct) may be less important determinants of behavior than how they are differentially perceived and interpreted by the individual (the perceptual component of the construct).
>
> (4) The perception and interpretation of deterrents to participation may be influenced by other important and pertinent psychological and environmental variables.
>
> (5) Deterrents may directly affect participatory behavior, or, alternatively may indirectly mediate between other influential antecedents of participation.
>
> (6) Deterrents to participation (whether conceptualized structurally or perceptually) may differ according to the personal characteristics and life circumstances of the individual.

(7) According to the personal characteristics or life circumstances of the individual, deterrents may often represent the *absence* [emphasis in original] of enabling factors as well as true barriers or obstacles to participation.

(8) Deterrents to participation in continuing education may represent generic influences upon behavior to other participatory domains. (Scanlon, 1986, pp. 12-13)

Again, Scanlon could have been making the case for postsecondary voluntary departure, rather than participation in continuing education, based on the findings and theoretical constructs of researchers such as Spady, Tinto and Bean, and on the empirical results of countless other research in the field.

Valentine and Darkenwald's typology of potential adult learners

In 1985, Darkenwald and Valentine published a study based on Scanlon's earlier work, which investigated deterrence to participation in adult learning environments, and arrived at six factors. These factors were (1) Lack of Confidence, (2) Lack of Course Relevance, (3) Time Constraints, (4) Low Personal Priority, (5) Cost, and (6) Personal Problems (Darkenwald and Valentine, 1985). In 1990, the two constructed a typology of the potential learners who faced such deterrents. In even a casual conversation on these identified deterrents, administrators and staff who work in postsecondary institutions quickly recognize the factors cited as being strikingly similar to reasons cited by students who are about to, or who have already decided to drop out of their program prematurely, as indicated previously. A final goal of this study is to draw on Tinto to create a modification of the Valentine and Darkenwald technique, to construct a typology of students in the technical college, which might have predictive and therefore intervention power in preventing premature departure of students.

Summary

Although Tinto's Interactionist theory appears to explain attrition in two and four-year colleges, there still exists the question of whether the phenomena are the same in technical colleges, where arguably, the motivations to attend and commitments to both the goal and the institution may be operationalized in different ways.

Keeping the fundamental elements of Tinto's theory intact, and conducting an empirical study of students in the technical college setting should be sufficient to determine an answer to this question. In doing so, the ability to form a predictive typology would have great appeal to practitioners in the field as well as providing a powerful application of any modifications to Tinto's work that may appear warranted for the specific case in question.

Darkenwald and Valentine's typology simplified some of the complex issues of why individuals do not participate in adult education activities, even when they understand and admit their own need for such participation. They also contributed recommendations on how to encourage participation, a long-time goal of adult education practitioners. It is the intent of this study to facilitate a similar simplification of the complex issues of departure behavior, along with a similar enabling of practitioners to impact the departure rates in technical colleges.

Chapter 3

METHODOLOGY

A questionnaire of student backgrounds and attitudes was constructed by combining items from Darkenwald and Valentine's Deterrents to Participation Scale (G) (Darkenwald and Valentine, 1985) and Pascarella and Terrenzini's Academic and Social Integration Scale, (Pascarella and Terenzini, 1983) with demographic items created by the author, and administered to newly matriculated technical college students at one of Georgia's technical colleges (Appendix B). This hybrid survey instrument was administered to new students prior to the beginning, or concurrent with the beginning, of their first term of attendance to collect data on background demographics and student attitudes and motivations, particularly as these attitudes and motivations impact their social and academic integration. These two integration concepts are fundamental to Tinto's longitudinal model of institutional departure (Tinto, 1993), and thus to this study . The surveyed cohort was then followed up, and at the beginning of each new academic term the institutional database was queried to see if any of the members of the surveyed cohort were not presently enrolled in the current term; thus two groups were formed, persisters and leavers. (At this point, it was unknown whether the students had transferred, dropped out, or stopped out, so they were simply classified as having left the college.)

Once the data were collected for both groups of students, the responses were analyzed statistically to determine the level of correlation of the variables in the initial survey with dropout behavior. If a leaver subsequently returned in one of the terms during the study, they were recharacterized as a returnee, and their data removed from the leaver survey group. The DTAE central database was queried to ensure that students who were classified as leavers had not

transferred to another DTAE institution, thus becoming transfers rather than leavers. In this case, the transfer students were dropped from the study, since they had actually continued their studies, but simply changed institutions. Transfer behavior is not an element of study in this project.

Even though many students who initially depart the institution intend to return at a subsequent time, for the purposes of this study the data were included for all leavers not otherwise identified as above, unless they subsequently became returnees within the duration of the study, regardless of what they indicated in regards to their intent to eventually return.

Heart of Georgia Technical College

As indicated previously, the newly matriculated students of a technical college were initially surveyed. The school and its general student population characteristics are described below.

Heart of Georgia Technical College's student population during the spring quarter 2003 was 1495, with 36% of them being full time students, and 64% part time. Only 4% were Associate's degree students, while 42% were enrolled in diploma programs. The population was 40% male, 60% female, and 33% disadvantaged (DTAE classifies a student as disadvantaged if they have either economic or physical handicaps). They were 54.5% white, 43.9% black, and 0.9% Hispanic.

The characteristics of the college listed above compares to the statewide averages of the 34 technical colleges in the system as follows: The average enrollment in Georgia's technical colleges for the quarter under discussion was 2,411, with the largest enrollment being 5491 and the smallest 229. Approximately 40% of the total student population of the 34 colleges were full time students, and the remaining 60% were part-timers. Of the total student population, 14.9% were enrolled in Associate's level programs, with 55.7% of them being enrolled in diploma

programs. Another 21.6% were enrolled in technical certificate of credit programs, and the rest were institutional admissions. Institutional admissions include those students who are not enrolled in a specific program of study, who are enrolled in either developmental or "core" only subjects. These "core" students are ordinarily taking the core subjects required by an Allied Health specialty, such as Nursing or Respiratory Therapy, but have not yet been admitted into the specialty program *per se.* The statewide technical college population was 61% female, 39% male, and 40% qualified as disadvantaged students. About 53% were white, 41% were black, and 1.9% were Hispanic. (For the college listed above and the statewide student population in general, the ethnic percentages listed do not add up to 100%. The remainders of the population are split between American Indian, Asian, and Multi-Racial groups, but each constitutes only a small fraction of a percent of the total student population. All ethnic identities are as self-reported by the students.) (GDTAE, 2004)

Institution	**Student Population**	**Full time**	**Part Time**	**Associate's Degree**	**Diploma**	**Male**	**Female**	**Disadvantaged**	**Black**	**White**	**Hispanic**
Heart of Georgia Technical College	1495	36%	64%	4%	42%	40%	60%	33%	43.9%	54.5%	0.9%
Statewide System Averages	***2411***	***40%***	***60%***	***14.9%***	***55.7%***	***39%***	***61%***	***40%***	***41%***	***53%***	***1.9%***

Table 3: Comparison of college in study with statewide averages

Survey Administration Issues

Several aspects of the administration of the actual survey instruments had to be carefully controlled. Because of the principal researcher's status as president of the institution in which the students were enrolled, and the potential power differential issues that arise from that fact, the director of student services administered the initial survey. The director of student services

presented the initial survey as an institutional request for information, and did not mention the fact that the researcher was the college president. In similar manner, a research assistant handled all telephonically administered instruments, using a written script provided to ensure consistency of administration, and avoidance of the power differential issues in the follow-up calls. The potential influence of any perceived power differential issue may be in both positive and negative directions. In the negative direction, undue influence could have been exerted upon the students by allowing them to think that they were in fact not free to choose to participate or not participate in the survey. In the positive direction, an unintended "Hawthorne effect" could have been manifested by some students, simply by knowing that the president was interested in what they thought, and wanted them to participate in a data collection process. The use of the proxy to administer the instruments obviated any positive or negative power differential impacts.

Student social security numbers are uniformly used throughout DTAE to identify students in the database system, both in the institution and in the central management information system. For this reason, a coded worksheet was implemented, which correlated the student's identifying information to a "blind" code, which was not decipherable except by the principal researcher. Only this blind code was physically identified with any student responses, so the privacy of each student was assured throughout the process from initial survey to completion of the follow-up. Other issues of privacy and the voluntary nature of participation in the data collection process were dealt with by the use of a briefing sheet that constituted the cover of the survey instruments.

Defining the Variables

The modified model of Student Attrition in Technical Colleges describes in a relational model the five collections of previously recognized variables, and creates a new construct, "propensity to persist," which is the combined effect of "background variables," the

"psychological component," and the initial impact of "external forces." Background variables include age (Cambiano, Denny, & De Vore, 2000), socio-economic level (Cofer & Somers, 2001), race (Cofer & Somers, 2001), and expectations for completion of a higher education program as expressed by both (or either) of the parents' education level (Astin, 1976). Past educational experiences are expressed by the student's having completed high school or attaining a General Equivalency Diploma (Astin, 1976), (Pascarella & Terenzini, 1979). Only a very small number of programs are even available to students without any high school credential at all, and most of these require a high school credential prior to graduation from the technical college program. Other college experiences predict that, based upon familiarity with the processes and procedures found in the application and matriculation processes, the student will be more or less likely to persist. The one variable that is questionable, due to the void of supporting literature, is whether being a first-generation college student makes one more or less likely to persist.

The psychological component consists of three main variables. Goal orientation describes the student's foundational reason for entering the postsecondary institution. Each of the four goal orientations is common among most cohorts of students. Whether one or another of them is more closely correlated with persistence will be seen in this study. Motivation is the student's intrinsic desire to complete their selected program, based on their goal orientation. Commitment to the objective measures the willingness to do whatever is necessary to attain the goal.

It is at this point that external factors then begin to work, in either a negative or positive way. If the student is employed full time, there are obvious issues of time management and potential conflicts that may arise between being able to complete assigned work in the college program and fulfilling workplace obligations. Thus, the more hours a student works, the greater the likelihood they will depart (Wyman, 1997). Likewise, having reliable transportation and

dependable arrangements for childcare establish a positive force for persistence, the absence of them exerts a force towards departure. Among the students who attend the technical colleges, family support issues often create positive or negative forces for continued enrollment or attrition. While Tinto would marginalize the financial issues, among this student population the availability of financial aid, the availability of other external sources of income and the level of debt and/or expenses outside those of college may be very important. The distance the student resides from the campus may also become an external issue, in that the amount of time spent commuting may become an obstacle to persistence in and of itself.

Variable	Researcher Describing Variable	Effect of Variable on Dropout Behavior
Age	Cambiano, Deny, & DeVore, 2000	The older the student, the more likely to depart
Socio-economic level	Cofer & Somers, 2001	The higher the SES, the more likely to persist
Race	Cofer & Somers, 2001	Minorities other than Asian less likely to persist
Expectations	Astin, 1976	The higher the parent's education level, the more likely to persist
Past Education Experiences	Noel, 1985	Poor past performance in other academic environments less likely to persist
Finances	St. John, Cabrerra, Nora & Asker, 2000	Lack of financial aid and other financial issues decrease persistence
Distance from Campus	Lombard, 1992	The greater the distance from campus, the less likely to persist

Table 4: Variables used to construct the Propensity to Persist

Each of the foregoing variables can be assigned a relative value, either positive or negative, in that each of them influences the student to persist or depart. Taken together, they constitute the propensity to persist, which is the collective force they exert towards completion or attrition. Before the student first sets foot in a classroom, this propensity has been established. By quantifying the propensity to persist, the benchmark to establish the student's typology is created.

The propensity to persist thus forms the starting point that each student brings to the institution as they begin their postsecondary career in the technical college. The propensity to persist is then again filtered through the screen of external forces, which act at this point to reinforce the propensity in either a positive or negative direction. It is not at all inconceivable that the external forces can so overwhelm a positive propensity to persist that a student may depart prior to beginning their classes (often called a "no-show"). If the external forces do not overwhelm a positive propensity, the elements of academic and social integration begin to impact the student. If the student's grades are satisfactory, their interest in the subject matter is maintained, and the difficulty of the subject matter appears to the student to be within their range of accomplishment, the resulting academic integration exerts a positive reinforcement for a decision to persist. Likewise, positive connections to faculty both inside and outside the classroom have been demonstrated to have a positive impact on persistence (Pascarella & Terenzini, 1979).

In similar manner, social integration elements work to reinforce the filtered propensity to persist. Because the student begins to have other interests than they had prior to matriculation, there is a tendency to have less in common with the old set of friends. Lacking a new group of friends in the educational setting to take their place creates a force towards attrition. Involvement in student clubs and student government enhance the social integration, as does having other social contacts within the college setting, and lessen the likelihood of attrition.

Taken as a linear model, the propensity can be seen to be either positive or negative. External forces reinforce or detract from the propensity, as do both academic and social integration. If the whole equation is positive, the departure decision is not made; that is to say, the student chooses to persist. If the resulting coefficient is negative, however, the departure decision to leave the college is made.

The Operational Model

Operationally, each variable in the conceptual model potentially has an impact on every other variable in the model, including the departure decision. The overall model, then, seeks to identify correlations at a basic level. Once all correlations have been calculated, the constructs of the conceptual model can be operationalized by combining relevant sets of variables through factor analysis. Hopefully, the statistical procedures used will significantly simplify the ability to identify potential leavers prior to their departure. Once the factor analysis has been conducted, a structural equation model will be identified from which will emerge the actual typologies of students which make up the sample under study. It is the construction of this typology that is the ultimate goal of this study.

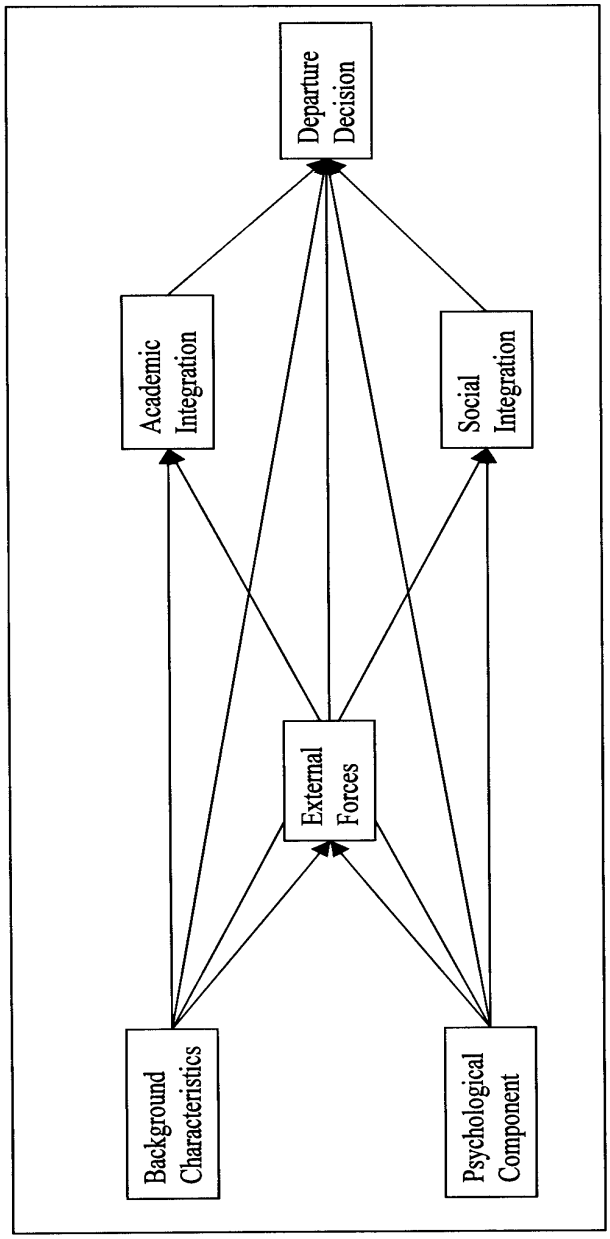

Figure 5: The Operational Model

Chapter 4

RESULTS

The Initial Survey

The survey described in chapter three was administered to newly matriculated students during new student orientation (n = 329). The survey results were reviewed for completion, and incomplete surveys were dropped (n = 21). As the study progressed, one student was discovered to have transferred, and one who departed subsequently re-entered the college. The surveys from both of these students were dropped, in accordance with the inclusion rules outlined in chapter three. The resulting data included information from 306 students.

The survey results were entered in an SPSS database, and additional information on each student was extracted from the college student records, including their admissions/placement test scores, program code, enrollment status, full or part-time attendance pattern, and their directory information, such as full name, mailing address and telephone numbers, and added to the database. This allowed one, single data source to control all future functions, including statistical analyses, telephone calls, mailings and any other contacts with the participants.

An analysis was conducted on the data, to determine statistical reliability. Because different kinds of scoring were used on various items in the survey, a standardized alpha was calculated to determine initial reliability. Since the instrument's items were principally extracted from previous instruments that had been proven to have good face validity, the theoretical validity of the instrument was also assured.

An analysis of who the students completing the survey were reveals the following information: Only 0.7% were enrolled in short-term certificate courses, and only 3.3% were enrolled in associate's degree programs. The remaining 96% were diploma students. This constituted enrollment in 41 different programs. Only 45.6% of the participants were full-time students, with 62% being female, 59.8% white, 37.3% black, 1% Hispanic and 1% Asian/Pacific islander. In terms of marital status, 4.5% were married with no children, 23.4% were married with children, 42.8% were single with no children, and 28.5% were single parents.

Institution	Student Population	Full time	Part Time	Associate's Degree	Diploma	Male	Female	Disadvantaged	Black	White	Hispanic
Heart of Georgia Technical College	1495	36%	64%	4%	42%	40%	60%	33%	43.9%	54.5%	0.9%
Statewide System Averages	***2411***	***40%***	***60%***	***14.9%***	***55.7%***	***39%***	***61%***	***40%***	***41%***	***53%***	***1.9%***
Sample Population	306	***43.5%***	***51.9%***	***0.6%***	***94.8%***	***37.9%***	***61.3%***	***37%***	***37%***	***59.4%***	***0.97%***

Table 5: Comparison of State, Heart of Georgia Tech populations with sample population demographics

Economically, the students represent the lower end of the economic scale; 81% had a family income of less than $20,000 last year, with 63% under $10,000, and 37% had a family income less than $5,000. Fewer than 10% (9.8%) were age 17 or under, and 54.1 % were 25 or over. Ten percent were over the age of 46. The students lived exclusively off campus, as this is a commuter only school, with 71% stating they lived within a 30-minute drive from the campus. The student who lived furthest from the college was 120 miles away, and the closest was within 2 miles of the campus. Approximately 14% lived within five miles, and over 40% lived more than 24 miles from the campus. Almost half (41.9.1%) were unemployed when they started

college; another 13% worked 20 or fewer hours per week. Only 19% worked 40 or more hours weekly.

Of the 306 students who participated in the survey, nine graduated during the study, all from the one-quarter in duration commercial truck driving program. One hundred eighteen withdrew during the study, and 179 were still enrolled at the end of the spring quarter, which ended June of 2004.

Factor Analysis

An exploratory factor analysis was conducted to extract the three main constructs included in the survey instrument: Background Variables, Psychological Variables, and External Forces, following the modified model of attrition in Figure 4. The three constructs were validated by this procedure, in that each item of the instrument contributed to one of the constructs. Factor loadings are shown below for each construct:

	Factor 1	Factor 2	Factor 3	Factor 4
Goal Orientation 1	.704	-.473	-.553	
Goal Orientation 2	.663		-.377	
Motivation 1	.585		-.366	
Self Confidence 4	.571	-.328		
Motivation 2	.548	-.399	-.360	
Commitment 3	.519	-.481	-.474	
Commitment 4	.518		-.442	
Self Confidence 2	.374	-.817	-.320	
Self Confidence 1		-.584		
Goal Orientation 3	.386		-.761	
Motivation 3	.649	-.513	-.725	
Motivation 4	.560	-.459	-.691	
Commitment 1	.577	-.389	-.642	
Goal Orientation 4	.583	-.411	-.606	
Goal Orientation 5	.350	-.354	-.369	
Self Confidence 3				.350
Goal Orientation 6				.311

Table 6: Factor Loading on "Psychological Factors" (Extraction method, Principal Axis Factoring; Rotation method: Oblimin with Kaiser Normalization)

	College Preparation	Past Experiences	Expectations	Demographic	First Generation	Gender
Asset Reading Score	.983					
Asset Writing Score	.977					
Asset Math Score	.928					
First Generation 1						
Past Exper 1		.607				
Socio Econ1		.529				
Past Exper 2		.500				
Past Exper 3		.451				
Age		-.443		.423		
Expectation 2			-.778			
Expectation 1			-.657			
Marital/Child Status				-.645		
Socio Econ 3				.523		
Race				.469		
Past Exper 4						
First Gen 2					.671	
Socio Econ 2						.421
Gender						.413

Table 7: Factor Loading on "Background Variables" (Extraction method, Principal Axis Factoring; Rotation method: Oblimin with Kaiser Normalization)

	Family Support	Distance	Finances	Child Care	Medical	Work
Fam support 3	.702					
Medical 3	.627					
Fam Support 1	.586					
Finances 1	.561					
Fam Support 2	.469					
Distance 1		.996				
Distance 2		.861				
Finances 3			-.842			
Finances 2			-.816			
Work 2			-.359			
Child Care 3	.314			.878		
Child Care 2				.845		
Child Care 1				.793		
Medical 2	.327			.432	-.320	
Medical 1					-.635	
Fam Support 4	.393				-.583	
Medical 4					.498	
Medical 5					.318	
Work 1	.425					.676
Hours Worked						.408
Work 3						.301

Table 8: Factor Loading on "External forces" (Extraction method, Principal Axis Factoring; Rotation method: Oblimin with Kaiser Normalization)

One should note that factor loadings below 0.300 are suppressed in the three tables, for the sake of clarity. Table 6 depicts the factor loadings for block two of the modified model, the Psychological Component. Although the reliability coefficient alpha for this construct is .7945, and the standardized alpha is .8613, from the cross loading of the variables it seems clear that the four concepts within the construct are not clearly differentiated. A consultation with a psychological clinician with over 20 years experience (S. Peters, personal communication, 16 July, 2004) resulted in the opinion that the instrument was not sensitive enough to sufficiently capture the differences between the concepts of motivation, goal orientation, self confidence and commitment, thus the cross loading.

Table 7 describes block one of the modified model, Background Variables. In this case, the factor loadings show a clear differentiation between the concepts, with the reliability coefficient alpha somewhat lower, .6982. Still, as one scans the table, it becomes very evident that the empirical structure of the construct is generally consistent with the theoretical model.

Table 8 depicts block three in the modified model, External Forces. The table reveals some cross loadings between variables, which are easily understood in terms of the inevitable links between family support issues, work schedules and medical care for family members.

With the constructs firmly established, the next step in the evaluation process was to construct from these first three the propensity to persist construct. As seen in figure 5, the operational model, each construct impacts all of the other constructs. Using this as a springboard, the propensity to persist was constructed initially by merely adding together all of the responses given by the participants to the initial survey. This initial effort resulted in a scale that was completely unsatisfactory, as it contained at least two major flaws. First, the scale had only a positive range, that is, all the scores had positive values. Although an individual's score could then be seen to be relatively larger or smaller in comparison to another's, there was

nothing to reflect the group's tendency to persist or depart. Secondly, the various components of the propensity were out of scale with each other, internally. A person who lived far away from the campus had the potential to have a much greater propensity to persist than one who lived closer—exactly opposite the intended relationship.

The second issue was easy to rectify. By including only the 5-point Likert scaled items, each component of the construct had equal initial impact on the overall score. The first deficiency was also rectified. Subtracting the mean for the entire group from each individual's total score resulted in a scale with a range from –110 to +167, and which included zero as a possible propensity score. This null score represented true neutrality to persistence; students with a zero propensity score theoretically have a tendency neither to stay nor depart. By itself, however, the construct still included the skew-inducing open-scaled items. By using only the Likert scaled items, the overall range dropped to a negative score of –69.7 through a positive score of +28.3. Interestingly, the correlation between the scale which included all of the scores, and the scale that included only the 5-point Likert scale items was 0.89, a very high correlation, in spite of the obvious skewing that the number of hours worked and distance from campus caused.

Since the survey instrument was constructed from earlier instruments used to evaluate persistence in 4-year colleges, the propensity to persist score derived as described above should have had a high correlation to dropout, assuming the typical "null-hypothesis" that there are no differences between technical college students and university students in terms of their psychological factors, backgrounds, and external issues. A correlation of 0.5 or higher between the enrollment status variable and the propensity score would have shown the two groups of students to be alike, and a score lower than that would demonstrate that they were different. The actual result, however, was far different than was anticipated. The correlation between dropout

and the propensity to persist score was not only smaller than expected, with an r^2 of only 0.11, it became apparent that the two groups of students were virtually the opposites of each other. A one-way analysis of variance was conducted to determine the significance of the individual variables as compared to the enrollment status variable, which described the current, graduate, or leaver status of the student. The results of the ANOVA are seen in table 9 below along with the correlation coefficient between the variable and the enrollment status variable (degrees of freedom for all variables was: between groups = 2; within groups = 303, total = 305). Asset test scores, program level (whether a certificate, diploma or degree level program) full or part-time enrollment status, age, gender and hours worked were found to be significant at the $p<.05$ level. These variables accounted for 28% of the variance in enrollment status.

The Qualitative Approach

The original research design included a second, follow-up survey to be given to students who departed prematurely (Appendix C), and another, similar instrument to be given to those who persisted throughout the duration of the study, or who graduated prior to the end of the study (Appendix D). When the follow-up surveys were distributed, however, the return rate among both persisters and leavers was so small as to not be useable. Only 7 surveys were returned from an initial mailing of 117 students. A second mailing resulted in the return of only 5 more. Two research assistants were assigned the task of calling each participant to attempt to attain completion telephonically. After repeated calling over a two-week period, including those returned by mail, a total of only 28 surveys had been collected.

Although the difficulties with collecting follow-up data from students who prematurely depart the institution are well known, the difficulty with collecting similar data from students who were still enrolled was unexpected. Upon further consideration, however, the sample decay among the enrolled students can be understood in context. Just like the departed students, all continuing

students in this sample were off-campus residents. Thus, there was no better opportunity to contact a continuing student than a leaver after they departed classes for the day.

Variable	F	Significance	Correlation w/ Enrollment status	Variable	F	Significance	Correlation w/ Enrollment status
Self confidence 1	1.830	.162	-.075	Expect1	.537	.585	-.018
Self confidence 2	.244	.783	.039	Expect2	2.317	.100	.019
Self confidence 3	2.166	.116	.083	Ses1	3.121	.046	-.153
Self confidence 4	.015	.985	.010	Ses2	.732	.482	.031
Commitment 1	.251	.778	.041	Ses3	2.915	.056	-.006
Commitment 2	.005	.995	-.004	Hours wkd	3.471	.032	-.131
Commitment 3	.360	.698	.003	Dist1	.898	.408	-.020
Commitment 4	.275	.760	.035	Dist2	1.810	.166	-.042
Goal Orientation 1	.668	.514	.058	Fam supt1	.117	.890	.014
Goal Orientation 2	.708	.494	.061	Fam supt2	.700	.497	-.033
Goal Orientation 3	.361	.697	.021	Fam supt3	.269	.765	-.002
Goal Orientation 4	.314	.731	.044	Assettread	3.207	.042	.104
Goal Orientation 5	.085	.918	-.002	Assetrite	3.190	.043	.111
Motivation 1	.179	.837	-.034	Assetmath	3.022	.050	.089
Motivation 2	.980	.377	.078	Proglevel	5.221	.006	-.025
Motivation 3	488	.640	.041	Ft/Pt	7.756	.001	-.188
Motivation 4	.673	.511	.059	Past exp1	.940	.392	-.034
Child Care 1	1.567	.210	-.033	Past exp2	.137	.872	.054
Child Care 2	.521	.594	.032	Past exp3	.144	.866	.028
Child Care 3	.126	.882	-.008	Past expr4	.787	.456	-.061
Medical 2	1.687	.187	.053	Mar/child	.252	.778	-.027
Medical 3	.408	.665	-.046	age	3.480	.032	-.013
Medical 4	.458	.633	-.024	gender	5.454	.005	-.045
Medical 5	1.455	.235	.044	race	.247	.781	-.016
Work 1	1.602	.203	-.109	First gen1	.617	.540	.035
Work 2	.883	.415	-.033	First gen2	.732	.482	.061
Work 3	.542	.582	.002				

Table 9: **ANOVA and correlation matrix for variables compared to enrollment status**

Additionally, although the initial survey was collected from a "captive" audience in their mandatory new-student orientation session, all follow-up surveys were conducted either by mail or telephonically, as has already been discussed. The continuing students are thus similar to departed students in that there is no greater opportunity (excluding class interruptions, which was not considered) to contact the remaining students than there was for those who had departed, until their final graduation audits. Since the study ended prior to graduation audits taking place, there was ultimately no greater possibility of contacting continuing students than those who were leavers.

The resulting number of returned follow-up surveys was far too small a sample from which to draw conclusions. Additionally, although the initial questionnaire collected a large

quantity of important data, there was still a need for inquiry into individual motivations and decision-making processes in order to better understand the data that had been gathered. A modification to the research design was thus sought based on the low return rate, but with added emphasis from Tinto, who described using both quantitative and qualitative methods for research on the subject:

> However designed, survey methods are not able to fully tap the complexity of student views and the character of their understanding of the quality of their experiences. For that reason, effective assessment of retention also requires the use of a variety of qualitative methods ranging from focus-group interviews to qualitative interview techniques to explore student perceptions of their experiences on campus (Tinto, 1993, p. 217)

From the compiled roster of participants, the extreme propensity scores were collected, and the top (most positive) and bottom (most negative) were sorted from highest to lowest, and a campaign to contact three or four from each list was begun. The focus of this campaign was to conduct personal interviews with students with very high and very low propensity scores, to see if the similarities and differences between the two groups could be derived. Perhaps, it was thought, a qualitative approach might be able to deliver data that the quantitative approach had not. To that end, from the 20 highest scores, and the 20 lowest scores, three from each category were sought for interview. Interestingly, and in keeping with the results from both the mail back and telephonic survey attempts, numerous appointments were made, then subsequently broken without any advance notice by many of the interviewees. It is difficult to say without further research whether this aspect of the population under study is characteristic of another difference between 4-year and technical college students.

The Interviews

Six students, in a variety of settings, were interviewed by the principal researcher to determine whether the kinds of issues Tinto described in his book (1993) were pertinent to technical college students or not. An interview guide listing the relevant issues for inquiry served as a map to guide the discussions, making all the interviews common in scope and level of inquiry (Appendix E). A written statement of informed consent was given to each interviewee, describing the potential uses of their comments, and describing the voluntary nature of the interviews (Appendix F). Throughout all the interviews, at least two significant themes emerged. The first theme was of a search for economic advantage—this proved to be the fundamental motivation of all six of the students, without regard to whether they had a positive or negative propensity score. The second major theme was of overcoming significant barriers, whether internally or externally imposed.

Mike was a 22 year old white male former student, with a propensity score of +24.3, who had been pursuing a short-term technical certificate of credit. He described his academic environment as being friendly, and his instructors concerned and approachable. In terms of Tinto's concepts of academic and social integration, he seemed well satisfied with his college experience. When he was asked to think about why he began college, his immediate reply was "to get a better career—a job". This theme would be repeated by every other student who was ultimately interviewed for this study. He had been working at a carpet mill and was laid off. Since his step father was a truck driver who owned his own rig, Mike thought it would be a good idea to attain a commercial driver's license, or CDL. After pursuing about half the curriculum, Mike was stricken by a heart attack. Once he had recovered from surgery to correct a valve defect, there were three family deaths in succession over the next three weeks. Needless to say, in a ten week course, Mike had missed too much to be able to make up the missing work, and

rather than take an incomplete and finish the program at a later date, which would have been an option, he chose to leave school altogether. Interestingly, during the interview, when asked if his health problems were in the past, he replied, "Yes, now I'm like a regular person." This phrase recurred later in the conversation. When asked if he intended to return to college at some future date, he replied in the affirmative. This time, however, he intends to study diesel mechanics. When he was asked about the commercial driving program, he indicated that it "seemed like a good idea." When discussing the idea of attempting the diesel mechanics course, though, he said he had worked on his step-father's "big truck, and just, you know, fell in love with it." Mike's motivation may or may not have been sufficient to overcome his health problems in the CDL program, but his animation and obvious enthusiasm for the diesel mechanics program seemed on a different level altogether. Only time will tell if he actually does enroll in the new program.

Kevin, on the other hand, is a continuing student in the computer information systems course (CIS). His story is a little different. Kevin completed his high school classes in 1998, but did not graduate until 2003. He had significant difficulties in passing the Georgia high school graduation test in several subjects. In fact, he took and re-took the language arts test twice, the math exam 11 times, the social studies test 12 times, and the science graduation test no fewer than 20 times before he finally succeeded in meeting all the graduation requirements. His propensity to persist score was –23, which, given his obvious persistence in gaining his high school credential seemed somewhat out of balance. When asked about his initial goals and motivation for enrolling, he told a story of wanting to get a job in the just-announced Chrysler plant which was to be built in Pooler, Georgia. He was interested in automobiles anyhow, he said, and had always wanted to move from his home to Savannah, because, "I think there's more going on in other places." He enrolled in the automotive technology program to build a skill set

that might get him hired at the automobile manufacturer's plant. Throughout his interview, Kevin repeated the phrase, "to get some skills" or "have some skills" numerous times. It was clear from this that he was seeking something more than a short-term job, such as he already had at a local regional distribution center working as a warehouseman.

When Kevin realized that the Chrysler plant was not going to be built, he dropped the automotive technology program, but rather than leaving the college, started a computer information system course. His father had told him, that "You need to know about computers." Kevin could easily have justified to himself dropping out altogether, but his mother, deceased for the last 5 years, had told him, "Don't ever give up on what you're aiming for." His response to the high school graduation test requirements demonstrated in a major way that he was following his mother's advice, and would seem to explain the disparity between his propensity score and his rather significant efforts to persist in attaining his high school credential. Since the job that Kevin had previously been "aiming for" had gone away, he was asked point-blank why he stayed in school. He began speaking at some length about "needing some skills" or "getting skills". In fact, he repeated one or both of these phrases 11 times during the conversation.

In discussing his college experience thus far, Kevin was asked about having friends in class, belonging to school organizations and participating in outside activities. He denied all of these, indicating in terms of the modified model that social integration was not significant to him. When he was asked about academics, he stated that "I have a hard time getting into it; you know, getting motivated. I can do the work, I just have trouble staying motivated. It's like they broke my spirit when the Pooler job went away." When asked if grades were important to him, Kevin replied yes, they were important. But when the subject was pursued a little further, he admitted, "I'd rather have a "B" but I'm fine with a "C". He denied having any kind of social

relationship with instructors, and in fact, as being hesitant to meet with them outside of the classroom environment. His academic integration seemed lacking from these responses.

Sally is a female former accounting student. Her propensity to persist score was +22. She graduated from high school, and, in order to move away from home and live independently, she began to work at a local electronics component manufacturing plant on the assembly line. Describing her initial motivation for taking the accounting curriculum, she said that she had "always been good with math, and, you know, liked doing that kind of thing." When she was pressed to describe her future plans, she had no specific job in mind, just "generally want to work in the field."

Working full time during the day and going to school at night part time, Sally maintained a high GPA. But when her shift at the manufacturing plant changed, and she had to begin working the night shift, her grades began to drop. She didn't like taking morning classes after working all night, and scheduling classes began to be problematic. When at last she spoke to a CPA and discovered what the average starting salaries in the area would most likely be for her skills, she "decided to just stay at the plant and drop out of school. I mean, it didn't make sense anymore, since I wasn't going to be making as much with my diploma as I already do at the plant."

Sally said that she enjoyed her classes, and had "lots of friends" at the college. In fact, she had been elected to serve as the student government representative from the business technology department, and according to her, "loved going to school and loved studying." From either the academic or social integration perspective, it would seem that she should have had no difficulties in persisting in school, if social and academic integration were significant elements in her decision making process.

Jeff is a 29 year old, Hispanic male former student. Born in Mexico of migrant farm worker parents, Jeff did not have a good high school experience. Moving around frequently, his opportunities for education were slim, but then, according to Jeff, so was his motivation to do well. When his parents moved to the United States, Jeff finally had the opportunity to go to school, but still lacked motivation to do well. Upon marrying and having two sons, though, his motivation changed radically. Jeff taught himself English, enrolled in the GED preparation course at Heart of Georgia Technical College, and attained his high school equivalency. He then set out to attain his American citizenship, and 18 months after he started, was sworn in as an American citizen. Once he started on his educational journey in earnest, Jeff gained momentum, entering the computer information systems course. Unfortunately, Jeff became a victim of his own success. Working as an hourly employee for a local fruit and vegetable packing company, upon attaining his GED, Jeff was promoted, given a significant raise in salary, and put in charge of all the packing and warehousing operations. His success left little time for continuing his education. During his interview, Jeff maintained a "hang-dog" appearance. He admitted to feeling "like a complete failure, especially to my sons. I tell them all the time how important education is, and then I dropped out of school myself." Any impartial observer would call Jeff a major success: literally teaching himself to read, write and speak English, and moving himself from the lowest economic levels as a migrant worker, to being a middle-class supervisor for a major company. But not Jeff; he spoke passionately and at length of the importance of education, and how he had failed to attain his educational goal. When asked about his relationship with his instructors, he brightened perceptibly, and related how they had assisted him in gaining his citizenship. Clearly, his academic and social integration were significant, but as in the other two cases, the quest for economic advantage overcame his positive propensity to persist score of +21.

Ruth had a completely different story than the others—a special education diploma from high school, and a burning desire to become a nurse—a desire that had been blocked at every turn. Yet, as a 47 year old mother of three, she had not stopped striving for her goal.

She had not been a very successful student early in her high school career, although she "always enjoyed learning and going to school." Graduating from a small rural high school with a special education diploma, she subsequently had attended a nurse's aid program, but stopped out short of graduation. Years later, with her desire to become a nurse still strong, her children were "finally old enough to go to school on their own", leaving Ruth with time to go back to school to study to become a nurse at last. Applying for the nursing program at Heart of Georgia Technical College though, meant taking a placement exam, something very difficult for her. Scoring below minimums, she was referred to a developmental program. Unsuccessful there, and, after the fact, when the admissions office recognized that she had a high school diploma that was not recognized for "regular" admission; she was subsequently referred to the Adult Literacy program. (A GED in lieu of the special education diploma would allow her to gain regular admission to the medical core curriculum.) Now seemingly as far away from her goal as ever, Ruth is not deterred. Going to class, working with her teacher, and helping other students occupies her time, and she feels that she is making steady progress towards her goal. In a follow up conversation with her teacher, it seems evident that Ruth will never be able to attain her final objective—she has a learning disability—but that doesn't seem to make any difference to Ruth. She is working hard; in her words, "I have to work harder, try harder than the others, but I don't mind." She has "plenty of friends in class", and thinks very highly of her instructors, seemingly indicating good social and academic integration. She has a propensity to persist score of -16.3.

In the initial phase of the interview, Ruth had somewhat of an ax to grind. She had received a letter inviting her to the interview, and in the letter, it referred to students who "drop

out" of college. Ruth wanted everyone to know for certain that she had not dropped out. She had had to take a backwards step, but she had never dropped out of her own volition.

"Name"	Sex	Age	Integration?	Propensity Score	Persist?
Mike	M	22	good	+24.3	no
Kevin	M	24	poor	-23	yes
Sally	F	26	good	+22	no
Jeff	M	29	good	+21	no
Ruth	F	47	good	-16.3	yes

Table10: Comparison of interviewee characteristics

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

Because of insufficient return of the follow-up survey items, that segment of the research design that might have made the creation of a technical college student typology possible was dropped. In its place, the qualitative interviews with participating students gave several insights into the processes involved in the departure decision cycle of technical college students, but were simply insufficient to create the typology that had been sought for in this study. A number of valuable observations on this student population have resulted, nevertheless, and several hypotheses about this student population can be drawn from the discussion.

Although it does seem from the initial survey data that Tinto's Interactionist theory of student departure is at least partially operational as it pertains to technical college students, it is clear from the interviews conducted for this study that the motivations for entering the technical college are different for this student population than for the 4-year college population. When asked what their initial reasons for entering the technical college were, all of the interviewees described in one way or another the concept of economic advantage. They entered the college with the specific intention of attaining a better job, or more skills to improve their current position in the workplace. There was no talk of helping humanity, of gaining appreciation for intellectual growth and development, or of any other motive for entering college. In fact, the survey results pointed out that the main reason students entered the technical college was that there were specific job skills they wanted to learn. Of the 306 students surveyed, 92% agreed or strongly agreed with the statement that there were specific skills they wanted to learn. In each

case when the student decided that the pursuit of the academic credential was not going to be of advantage, they gave up the educational quest in favor of the job opportunity. Those who did not leave for this specific reason, departed due to external forces beyond their control. This argues powerfully that the later elements in the modified model may only rarely come into play in the technical college student's departure decision process. When one looks at the fact that in each case, the departure decision was made in spite of good academic and social integration, the issue seems to be even clearer. Their role as student is subordinate to their roles as employee, mother/father, child, etc.

As the interviews progressed, an increasing concern that what was being gleaned from the interviews, as in the analysis of the initial survey, was not what had been anticipated. Two more students were therefore selected for interview, this time chosen on the simple basis that they had previously been enrolled, and had subsequently dropped out of the college. The interview with Lisa was enlightening. She had initially entered the college in the fall term of 1999, went to classes for several terms, dropped out, restarted in a different program at Middle Georgia Technical College, dropped out there, and had returned to Heart of Georgia Tech to complete her initial program in Business Office technology. Surprisingly, she sounded the same issues that had been heard from the initial student interviews. She is a black, 25 year old single mother of two, working full time in another city at a manufacturing assembly line, much like Sally. Going to school part time, working full time, and being the single mother of two children, ages ten and twelve, would have certainly put Lisa in a negative propensity score, had she been in the initially surveyed group. But in this case, Lisa was acting in the role of a control subject, to verify whether the data that had been collected was valid—it seemed to be flying in the face of the theoretical framework.

As a control case, however, Lisa fit in precisely with what was being heard from the other students. She repeated throughout the interview that she was trying to find a better job. She stated, "I was making really good where I am, but I wanted something with more, you know, security, and better benefits. I didn't want to stay on the line forever, that's where I still am, though." Again, as in the case of Sally, she had completed all but two classes in her curriculum. Unlike Sally, however, Lisa had been in almost constant contact with the college placement officer, who was consistently unable to find her a position that gave her the pay and benefits she was seeking, but within her field of study. Lisa had begun her course of study with no real concept of the dollars and cents aspects, or of the kind of environment in which the job she pictured existed.

Lisa and the other interviewees confirmed that, in fact, the dropout decision process for these students may be much simpler than might have otherwise been anticipated from the review of the literature. Practitioners in the field argue that technical college students are more sensitive to external forces, such as family medical issues, finances and work than the 4-year college students, but this was not reflected in the survey results. While it was anticipated that there would be a significant relationship between family income and dropout behavior, in fact, the correlation was only .007—not correlated at all with income.

Tinto's description that there is a tension created between the goals and institutional experiences that ultimately leads to the decision to quit school, appears to operate differently for technical college students. With technical college students, the tension would seem to be created between goals and economic realities, which may come as a result of the institutional experiences, but may also come from coping with external forces. The actual institutional experiences themselves may even be viewed as being peripheral to the departure decision process. In fact, it seems far more likely that the departure decision process with this student

population more closely resembles a simple cost-benefit analysis. If the amount of work required for the academic credential seems to be worth the eventual payoff in terms of payroll, then the student persists. Once the student determines that the payoff in terms of the economic advantage brought by newly attained job skills is insufficient, there is no other intrinsic motivator that comes into play. It appeared to be quite simple: no payoff, no college diploma.

One other aspect of this population that is evident from the interviews, if not from the initial survey, is the inability, or perhaps simply the lack of habituation of this college population to look at longer term goals and objectives. While they did admit to seeking economic advantage, none of the interviewed students had anything they could specifically point to as a three, five or even ten-year long-range objective. When Kevin was asked where he saw himself ten years from now, his immediate response was, "Like in school, you mean, or what?" In similar fashion, each of the interviewed students was unable to articulate in anything other than general terms any kind of life goals or even near-term occupational goals. All sought to have a "better job" but none were able to express what the term itself meant, or what specific skills would be necessary to obtain the objective. Sally had completed all but two classes of an accounting diploma program before thinking to ask what a person with those job skills would make in the workplace. When she discovered that she already made more in her factory assembly-line job than she could expect with her new accounting skill set, she dropped out. There was no apparent consideration of the long term impact of her decision. Similarly, Kevin admitted to seeking something that he could "You know, get into, get motivated and get my mind into." Yet he had made no attempt to seek out any kind of guidance or job-interest evaluation. He had been told he needed to go to college, and to not give up, so that's what he did. He had no idea, after the Pooler factory job idea failed to materialize, what he should do, or what his ultimate objectives might be. It is interesting to note that while Kevin spoke at length

about wanting to live in Savannah, and wanting to go to school there, he had not concluded that he might be able to move to Savannah, enroll at Savannah Technical College, and complete the very same program in computer information systems there that he was taking at his present school.

This inability to look at anything other than immediate needs and goals may be the issue that gave rise to both the massive failure rate in returning follow-up surveys, and in making appointments for interviews and then not keeping them. Each time a student failed to keep an appointment and was re-called to reset the time and date for the interview, the usual excuse for not keeping the initial appointment was "something came up."

This suggests that a good strategy for retention with this student population is to give them more information on what one could earn in the career field they are entering, what the duties of such a position might be, and to give them the opportunity to find out what they are genuinely interested in, before enrolling them in a long-term program of study.

The Research Questions

The object of all research is to answer essential questions and to validate or refute existing concepts. The original purpose and design of this study was to confirm whether the student populations at technical colleges are similar or different than the student populations at four-year and two-year colleges, and to draw some conclusions about the similarities or differences.

The specific research questions put forth earlier in this study and their associated answers are as follows:

(1) What common characteristics exist among technical college leavers? As described above, the most dramatic common characteristic of the technical college leavers appears to be a single-minded focus on the objective of attaining a new, or better job, to the exclusion of other

motivation. To a casual observer, the similarities between what students at the university and technical college students do seem overwhelming. They carry books, they go to classes, take exams, get grades; in short, both populations would appear to be engaged in the very same activity. When the initial survey was designed to be focused on the same questions that had been successful in collecting data on university students, it seemed a logical and rational approach. The student populations looked so much the same; it seemed very unlikely that there could be much actual difference in the two. However, the factor analysis of the psychological construct clearly indicated that the survey instrument did not cleanly differentiate between the technical college student's motivations, commitment, and goals. This oddity was confirmed when the propensity to persist construct was found not to correlate with the dropout status of the population under study. Although the propensity construct was newly postulated in this study, it seemed again to be a logical and rational concept, and in fact, it still seems from a logical point of view that the propensity construct must exist, although it is clearly not supported by this study. There are two possible explanations as to why the propensity construct did not correlate with dropout. Firstly, the data could have been completely erroneous. While it is very possible that there may be some error in the data, the face validity and statistical reliability as already discussed would seem to say that the data are accurate. The second, and possibly more likely reason that the correlation did not prove out is that the two populations are sufficiently different that a survey designed for four-year students, given to technical college students, is not adequate to measure the construct in the second population. While the construct may exist, this survey instrument did not adequately capture the differences between the populations, and therefore did not correlate to the dropout situation. The earlier quote from Tinto seems all the more appropriate now: "…. There are enough significant differences between the two situations to

limit the usefulness of the analogies which might be drawn from studies in either setting." (Tinto, 1993, p. 91)

Tinto might concur with the findings and conclusions of this paper. He stated that:

> Because of external obligations, adult students are more likely to be responsive to the employment outcomes of college than are most other students. For them going to college is more frequently a matter of economic needs than it is a youthful rite of passage. It is for that reason then that persistence among adults appears to be both a function of their commitment and the perceived utility of their education for future employment. (Tinto, 1993, p. 76)

Tinto also discussed the issue of external forces and the relationship of social forces on students of commuter colleges, which would also apply in this discussion:

> Compared to patterns of departure in largely residential institutions, departure from commuting colleges appears to be influenced less by social events than by strictly academic matters…and more influenced by external forces which shape the character of students' lives off campus than by events internal to the campus. (p. 78)

The second major characteristic that emerged was the technical college students' near-term focus. Not one single student interviewed was able to articulate anything resembling a long-term goal or objective. This is potentially another reason that the psychological factor construct was not sufficiently differentiated. Simply stated, the students have few if any objectives beyond getting a better job.

Another characteristic that seemed to materialize but was not measured was the seeming inability of the student population to make and keep obligations. Telephone calls were almost never returned. The return rate of the survey was abysmal, and when students made

appointments for interviews, they were almost never kept. All but one interview had to be rescheduled at least once, and the location for the single appointment that was kept was changed at the last minute to avoid cancellation. How this characteristic impacts dropout behavior was not a part of the research design, but was dramatic in its revelation.

2) How are the characteristics of these students the same or similar to those of leavers from four-year colleges and universities, and two-year community colleges, for which data are already accumulated? As described previously, although the two populations would appear to be engaged in the same process of higher education, the data simply do not correlate to the technical college population. The inability of the technical college students to articulate long-range goals in and of itself appears to be in dramatic contrast with students who set out initially on a four-year program of instruction. When the four-year population's record of continuing their education into Master's and Doctoral level programs that extend many years out from their origin is considered, the difference between the two populations is even more dramatic.

(3) How can the commonalities among technical college leavers be organized into an effective typology, so that those who depart can be dealt with according to the commonalities? Frankly, there is insufficient data available from this study to make the case for an effective typology. An inability to answer this research objective became evident early on in the data collection process, but it would be disingenuous to drop it from discussion because the data did not support its completion.

Implications from this study

There are a number of implications that can be drawn from this study.

1. It should be no surprise that the population under study seemed different from the four-year population. They are specifically recruited for short, low-cost, high payoff training. The fact that they seem motivated by short term objectives follows perfectly well from the effort used

to recruit them. Since this population did not respond the way the "typical" population in the four-year institutions do, further studies should be undertaken to more carefully delineate the differences. In fact, a replication of this study would significantly alter our understanding of whether this study population represents the general condition of the total population or not.

2. Given the decay in the original sample population of this study, some other approaches should probably be considered in any future studies. Future researchers need to determine whether, given the apparent financial advantage motivation of this group, some nominal form of payment might encourage their participation. Perhaps offering a small sum, for example one to five dollars, to return a survey would increase the participation level of the group. It seems evident that the approach of surveying this population to collect primary data is the correct way to gain confirmatory information. The question that must be addressed is how to best approach the problem of data collection, preventing similar study population fall off.

3. Based on this study, in consideration of the potential to impact retention in this population, it would seem that a major effort should be made by institutions to counsel and advise potential students in advance of their enrollment, vis-à-vis possible careers activities, financial potentials of their career choices, the long term implications of completion of the course of study.

4. Much more data on this population must be collected, to further enhance our ability to understand the decision processes that occur. While the Department of Technical and Adult Education in Georgia collects a significant amount of data on the colleges in their system, there is insufficient information available about the motivations, goal orientation and resulting decision making processes of this student population. A concerted effort to collect pertinent student data based on interviews and surveys at the state level would make studying this population much easier to do.

Recommendations for Further Study

Based on the foregoing, and on the data collected for this study, there are a number of lines of future research that suggest themselves.

Firstly, this study should be repeated to determine whether the results attained were typical or anomalous. Once this can be ascertained, a study similar in design to this study should be conducted, but it should use a vastly different assumption than was used in this design. Specifically, the new study should use the assumption that the two college populations are very different, not similar. The survey instrument would be constructed and calibrated for the technical college population, assuming a near-term focus on objectives, and a more single-minded approach to the purpose of a technical education than was assumed in the present study. There are at least two potentially productive lines that this study could pursue:

1. Focus the study such that the propensity to persist construct could be specifically delineated and confirmed. Logically, and flowing from both the literature and the theoretical framework of this study, the propensity to persist construct most likely exists. This construct, if sufficiently supported by empirical data, would be of exceptional value to practitioners in the technical college in anticipating dropout behavior, and could lead to programs that would enhance retention.
2. Once the propensity to persist construct is substantiated, the typology objective of this study, which was not attained, should be attempted. The subject of dropout is so complex that retention measures used in many schools address only portions of the issue. A typology that would simplify and categorize students based on risk factors unique to technical college students, ultimately deriving a student dropout profile would enhance retention efforts on a massive scale.

Since, based upon the current study, the two populations appear so different, studies that refine and delineate the differences should be undertaken. Informal discussions with technical college staff and faculty on this point, based on the tentative findings of this study lead one to the conclusion that perhaps the study should have had as its null hypothesis that there are no similarities between the two populations, rather than the opposing hypothesis that there are no differences. The delineation of differences could focus on the two concepts that occur later in the modified model, social and academic integration. In this study, the two concepts did not appear related to the departure decision process. Some students who persisted appeared to have poor social and academic integration, and students who departed seemed to be well integrated both socially and academically. This would seem to contradict Tinto in that both social and academic integration are seen in that model as being forces for retention, not departure. However, in this instance, they would seem to be inversely related.

Conclusion

This study has contributed to the available literature on student retention by opening new topics for discussion and postulating new constructs for consideration within the current theoretical framework. The technical college student has not been the subject of study to the extent that the four-year and two-year community college students have, but this is beginning to change as a number of dissertations are now or soon will be under way that will more thoroughly explore this topic. Although it might be argued that the contribution of this study is minor, it represents the leading edge of a wave of new studies that will make significant contributions to our understanding of the technical college student. There are many interesting questions remaining to be answered, and numerous intriguing lines of research to be explored. The coming contributions will be exciting to consider as the boundary of our knowledge of these students advances.

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Appendix A: Definitions

A number of terms relevant to this study must be defined to eliminate the possibility of misunderstanding and misapplication of the results:

Attrition rate: Students who depart prior to the completion of a program of study count towards the overall attrition rate from the college. The attrition rate is determined by dividing the number of students who do not return by the unduplicated total number of students enrolled in the college.

Leaver: A student is a leaver if he or she departs the institution prior to completion of the enrolled program of study.

Returnee: A student who has departed prior to completion of the program of study, but who subsequently reenrolls in the same program with the intent to complete it.

Drop out: A student who departs the college with the intent to not return.

Stop out: A student who has departed the college, and who intends to be a returnee, however has not yet reenrolled.

Successful completer: A student who graduates from the enrolled program of study within 1.5 times the nominal length of the program, or who attains a previously stated personal objective short of graduation. This may also include a new work opportunity (see below).

Reasons that students leave the college prior to completion must also be defined, if they are to be categorized in any effective manner:

Medical Problem: A medical condition that affects either the student, a member of his or her immediate family, or another significant person such that the condition requires that the student leave the program prior to completion.

Personal Problem: An issue that arises which includes childcare, transportation and family support issues, but does not include financial matters.

Financial Problem: An issue that is concerned with the ability of the student to pay for his or her education, books and supplies, or other bills not necessarily related to education. May also include issues with the delivery of financial aid to the student.

Academic Problem: A student's inability to maintain successful progress towards completion of the enrolled program due to grades or other classroom related issues except for scheduling issues.

Work related problem: An inability to continue the enrolled program of study due to factors arising out the student's employment. Includes changes of work schedule, transfer to another area or other issues that cause employment to be incompatible with continued enrollment, but does not include new work opportunities due to their field of study.

Attainment of personal objectives: Occasionally, students enroll in programs but do not intend to pursue the schedule to its completion; rather, they have set some intermediate learning objective for themselves short of graduation.

Scheduling Problem: Difficulty in completing the specified program of study due to the unavailability of needed coursework at a time during which the student is able to attend class. May reflect conflict with work schedules.

Work Opportunity: Sometimes, students obtain attractive offers of employment in their field of study before they complete their program, and must go to work immediately or lose the opportunity. This is ordinarily a successful completion for technical college students.

Appendix B: The College Preparation Survey

College Preparation Survey

This survey is being given to first time technical college students in Georgia, in an effort to better understand their motivation for attending a technical college, and to try to understand a little better what their attendance patterns and backgrounds are like. Thank you for participating in this study, which is being overseen by the University of Georgia's Institute for Higher Education.

By participating in this survey, you should understand that:

1. Your answers will not be associated with you in any identifiable way, and any information about yourself that you give will remain confidential, within the group of researchers compiling this information. Except for the research group, no one will know whether you participated in the study or not. Although it is possible that confidentiality may not be 100% guaranteed, the likelihood of anyone deriving your personal information from the research is remote. Once all the data have been collected and compiled, and the research completed, your individual survey will be destroyed.

2. You are free to answer, or not answer, any question that you wish. The more information you provide, the better informed the study will be in the end, but you are under no obligation of any kind, nor are you subject to any penalty of any kind, for answering or failing to answer any item on this survey.

3. By completing and returning this survey instrument, you are giving your permission for the researchers to use the answers you provide in the compilation of all such answers. Your individual information will not be associated in any way with anything that can be positively identified with you in the final published research findings.

4. Your educational records are protected from third-party viewing by a federal law known as the Federal Education Records Privacy Act, or FERPA for short. What this law basically says is that in order for someone to view your educational records, they must be granted access by you, or have direct need for access in the execution of their assigned job duties. Since this research does not fall into the latter category, we must request your permission to view any of your educational records, under FERPA. By completing this survey and turning it in, you are granting the researchers access to the information stored in the Department of Technical and Adult Education management information system database about you, for the purposes of completing this study. Nothing that can be identified as correlating with you personally will be released in any form, either now or in the future.

5. There are occasionally some circumstances in which some college students find themselves unable to continue with their college educations, in spite of their best efforts and best intentions. If that should be the case with anyone participating in this survey, the researchers may attempt to contact you after you have left the college, to determine if there is any information that would further enhance our understanding of why that happens. Should this apply to you at some time in the future, and the research group contacts you, you do not have to return the survey or answer the researcher's questions at that time. However, if you do not answer the researchers questions at that time, we may not be able to determine the answers to many of the questions that remain about college dropout. We hope that you will want to continue your participation in the study, and help us better understand the processes that occur in that case. In any case, you are under no obligation either today or at that future time; participation in this research study is entirely voluntary.

On the pages that follow, consider your feelings and attitudes about attending this college, and participating in the program of study that you have already selected. Give the answer that best describes your situation, or how you feel about the college and your program of study. Most of the questions are self-explanatory; but if you have a question, raise your hand and someone will try to help you determine what to do next.

Continue to the next page 

Indicate on the scale to the right by circling the number, whether you 1) *strongly disagree*, 2) *disagree*, 3) *neither agree nor disagree*, 4) *agree* or 5) *strongly agree* with the following statements. If an item does not apply to you, for example, if you do not have a job but the question asks about your employer, leave that item blank.

	Strongly disagree		Neutral		Strongly agree
1. I do not expect to have trouble competing with other students	1	2	3	4	5
2. I am confident in my learning ability	1	2	3	4	5
3. I may be too old to do well in college	1	2	3	4	5
4. I feel well prepared for college level work	1	2	3	4	5
5. I will have adequate time to complete the course	1	2	3	4	5
6. Completing this program is very important to me	1	2	3	4	5
7. I meet all the course requirements for my course of study	1	2	3	4	5
8. My family is encouraging me to continue my education	1	2	3	4	5
9. My course of study will be practical and useful	1	2	3	4	5
10. My course of study will meet my personal needs	1	2	3	4	5
11. My children will be well cared for while I am in school	1	2	3	4	5
12. The courses at this college are high quality	1	2	3	4	5
13. There are specific skills I want to learn	1	2	3	4	5
14. My course of study is on the right level for me	1	2	3	4	5
15. I will be able to continue in my present job and attend classes	1	2	3	4	5
16. This is my first attempt at college level work	1	2	3	4	5
17. I am the first in my family to attend college	1	2	3	4	5
18. I will make more money if I finish my education	1	2	3	4	5
19. My main objective is to get new job skills	1	2	3	4	5
20. I am very interested in taking courses	1	2	3	4	5
21. I am willing to give up some of my leisure time to do well	1	2	3	4	5
22. Financial aid will be adequate to help me pay for classes	1	2	3	4	5

Continue to the next page

	Strongly disagree		Neutral		Strongly agree
23. I will have time for school requirements and for my family too	1	2	3	4	5
24. A college education will help me in my job	1	2	3	4	5
25. I can afford miscellaneous expenses like books and supplies	1	2	3	4	5
26. I can afford the tuition and registration fees	1	2	3	4	5
27. My employer will provide financial assistance for me	1	2	3	4	5
28. I will be able to arrange for childcare if necessary	1	2	3	4	5
29. I do not anticipate having any family problems	1	2	3	4	5
30. I do not have any personal health or handicap problems	1	2	3	4	5
31. Family members that I take care of are healthy	1	2	3	4	5
32. My job schedule is relatively unchanging	1	2	3	4	5
33. Someone will always be available to take care of my children while I am in class	1	2	3	4	5
34. I was a good student in high school	1	2	3	4	5
35. When I was growing up, we always had everything we needed	1	2	3	4	5
36. After I pay my tuition and fees, and my monthly bills, there is not much money left	1	2	3	4	5
37. Now that I have started, nothing can stop me from completing my education	1	2	3	4	5
38. I will be able to do anything required of me in class	1	2	3	4	5
39. This is the most important self-improvement initiative I have ever undertaken	1	2	3	4	5
40. I am generally in good health	1	2	3	4	5

Continue to the next page

Please fill out the following demographic information so that we may know the characteristics of the people who took this survey. Your personal identifying information will not be released to anyone; it is only included for internal coordination purposes. None of your answers will be identified with you as an individual; they will be compiled and used only as totals of answers for each item.

41. Are you:
    A. Male
    B. Female

42. How do you describe yourself?
    A. Hispanic or Latino
    B. Black or African American
    C. Asian
    D. White
    E. Native Hawaiian or Pacific Islander
    F. American Indian or Alaska Native

43. The highest level of education your ***Father*** completed was:
    A. Grade school
    B. Middle School
    C. High School
    D. College Degree
    E. Unknown

44. For the last tax year, was your income closest to:
    A. Less than $5,000
    B. Between $5,000 and $10,000
    C. Between $10,000 and $20,000
    D. Between $20,000 and $40,000
    F. Over $40,000

45. The highest level of education your ***Mother*** completed was:
    A. Grade School
    B. Middle School
    C. High School
    D. College Degree
    E. Unknown

46. Are you:
    A. Married, no children
    B. Married, with children
    C. Single, no children
    D. Single, with children

47. On your last birthday, how old were you?

_____

48. Approximately how many hours per week do you work?

_____

49. About how many miles from campus do you live?

_____

50. From the time I leave home, it takes me_____minutes to get to class.

51. My high school diploma is from:

_____high school ***or***:

The year I received my GED was:

_____

52. The most important objective of my attendance at this college is:
    A. To gain my academic credential (i.e. diploma/degree)
    B. To gain personal knowledge for my own reasons
    C. To gain new job skills
    D. To make more money in my job
    E. To get a new, better job

53. In the last year, due to my own illness, I missed class/work about:
    A. Zero times
    B. Once or twice per month
    C. Five or six times per month
    D. About 10 times per month
    E. Over 10 times per month

54. In the last year, due to illness of a family member that I take care of, I missed class/work about:
    A. Zero times
    B. Once or twice per month
    C. Five or six times per month
    D. About 10 times per month
    E. Over 10 times per month

Thank you for completing our survey

Appendix C: Follow Up Survey 1.1

Follow-Up College Preparation Survey 1.1

This survey is being given to first time technical college students in Georgia, in an effort to better understand their motivation for attending a technical college, and to try to understand a little better what their attendance patterns and backgrounds are like. Thank you for participating in this study, which is being overseen by the University of Georgia's Institute for Higher Education.

By participating in this survey, you should understand that:

1. Your answers will not be associated with you in any identifiable way, and any information about yourself that you give will remain confidential, within the group of researchers compiling this information. Except for the research group, no one will know whether you participated in the study or not. Although it is possible that confidentiality may not be 100% guaranteed, the likelihood of anyone deriving your personal information from the research is remote. Once all the data have been collected and compiled, and the research completed, your individual survey will be destroyed.

2. You are free to answer, or not answer, any question that you wish. The more information you provide, the better informed the study will be in the end, but you are under no obligation of any kind, nor are you subject to any penalty of any kind, for answering or failing to answer any item on this survey.

3. By completing and returning this survey instrument, you are giving your permission for the researchers to use the answers you provide in the compilation of all such answers. Your individual information will not be associated in any way with anything that can be positively identified with you in the final published research findings.

On the pages that follow, consider your feelings and attitudes about attending this college, and participating in the program of study that you have already selected. Give the answer that best describes your situation, or how you feel about the college and your program of study.

This survey is a follow-up to students who 1) participated in the original College Preparation Survey research study, and who 2) have departed the technical college prior to completion of their program of instruction, for whatever reason. You can help us understand the reasons why technical college students depart prior to graduation by completing this survey. You are under no obligation to do so, but our understanding of the problems students have may be incomplete without your participation. Please respond to each item with your most recent technical college experience in mind.

1. How many organized extracurricular student activities did you participate in while you were enrolled? (Count only those in which you participated an average of two or more hours per week):_____

2. Students have a variety of contacts with instructors. In the blank to the right of each statement, please estimate the number of times while you were enrolled that you met with an instructor outside the classroom for each of the following reasons. Count only conversations of 10 minutes or more:

Primary purpose of conversation:	**# of contacts**
To get basic information and advice about my program	_____
To discuss matters related to my future career	_____
To help resolve a disturbing personal problem	_____
To discuss intellectual or course related matters	_____
To discuss a campus issue or problem	_____
To socialize informally	_____

Please respond to every statement by circling the number that represents how you feel. Use the following scale: 1) strongly disagree, 2) disagree, 3) not sure, 4) agree, 5) strongly agree

	Strongly Disagree		Not Sure		Strongly Agree
3. Few of my courses were intellectually stimulating	1	2	3	4	5
4. I am satisfied with my academic experience	1	2	3	4	5
5. I am satisfied with the extent of my intellectual development	1	2	3	4	5
6. My interest in ideas and intellectual matters has increased	1	2	3	4	5
7. Getting good grades was not important to me	1	2	3	4	5
8. I performed academically about the way I expected I would	1	2	3	4	5
9. I have developed close personal relationships with other students	1	2	3	4	5
10. It has been difficult for me to meet and make friends with other students	1	2	3	4	5

	Strongly Disagree				Strongly Agree
			Not Sure		
11. Few of the students I met would be willing to listen to me or help me if I had a personal problem	1	2	3	4	5
14. I was satisfied with my opportunity to participate in organized extracurricular activities	1	2	3	4	5
15. I was satisfied with my opportunity to meet and interact with my instructors	1	2	3	4	5
16. Few of my instructors were willing to spend time outside of class to discuss items of interest and importance to students	1	2	3	4	5
17. Generally speaking, my coursework was very difficult	1	2	3	4	5
18. I was very interested in the subject area I studied	1	2	3	4	5
19. It is still important for me to graduate from college	1	2	3	4	5
20. It is very important for me to graduate from *this* college	1	2	3	4	5
21. I intend to return to the same college, and complete my program as soon as I can	1	2	3	4	5
22. Although I did not complete my program of study, I did attain my personal objective	1	2	3	4	5
23. The main reason I left had to do with medical problems	1	2	3	4	5
24. The main reason I left had to do with personality conflict with one or more teachers	1	2	3	4	5
25. The main reason I left had to do with not being able to afford tuition and books	1	2	3	4	5
26. The main reason I left had to do with finances, but not college expenses	1	2	3	4	5
27. The main reason I left had to do with insufficient childcare for my children	1	2	3	4	5
28. The main reason I left had to do with unreliable transportation	1	2	3	4	5
29. The main reason I left had to do with a failure of my family (parents, spouse, etc) to help me stay in school	1	2	3	4	5
30. The main reason I left had to do with my job, or my work schedule	1	2	3	4	5
31. The main reason I left had to do with an inability or unwillingness of the college to schedule classes when I could take them	1	2	3	4	5
32. I left because of my academic performance	1	2	3	4	5

Appendix D: Follow Up Survey 1.2

Follow-Up College Preparation Survey 1.2

This survey is being given to first time technical college students in Georgia, in an effort to better understand their motivation for attending a technical college, and to try to understand a little better what their attendance patterns and backgrounds are like. Thank you for participating in this study, which is being overseen by the University of Georgia's Institute for Higher Education.

By participating in this survey, you should understand that:

1. Your answers will not be associated with you in any identifiable way, and any information about yourself that you give will remain confidential, within the group of researchers compiling this information. Except for the research group, no one will know whether you participated in the study or not. Although it is possible that confidentiality may not be 100% guaranteed, the likelihood of anyone deriving your personal information from the research is remote. Once all the data have been collected and compiled, and the research completed, your individual survey will be destroyed.

2. You are free to answer, or not answer, any question that you wish. The more information you provide, the better informed the study will be in the end, but you are under no obligation of any kind, nor are you subject to any penalty of any kind, for answering or failing to answer any item on this survey.

3. By completing and returning this survey instrument, you are giving your permission for the researchers to use the answers you provide in the compilation of all such answers. Your individual information will not be associated in any way with anything that can be positively identified with you in the final published research findings.

4. Your educational records are protected from third-party viewing by a federal law known as the Federal Education Records Privacy Act, or FERPA for short. What this law basically says is that in order for someone to view your educational records, they must be granted access by you, or have direct need for access in the execution of their assigned job duties. Since this research does not fall into the latter category, we must request your permission to view any of your educational records, under FERPA. By completing this survey and turning it in, you are granting the researchers access to the information stored in the DTAE management information system database about you, for the purposes of completing this study. Nothing that can be identified as correlating with you personally will be released in any form, either now or in the future.

On the pages that follow, consider your feelings and attitudes about attending this college, and participating in the program of study that you have already selected. Give the answer that best describes your situation, or how you feel about the college and your program of study. Most of the questions are self-explanatory; but if you have a question, raise your hand and someone will try to help you determine what to do next.

This survey is a follow-up to students who 1) participated in the original College Preparation Survey research study, and who 2) are still enrolled on the date this survey was administered. You can help us understand a lot about technical college students and their interactions at the college by completing this survey. You are under no obligation to do so, but our understanding of the problems students face may be incomplete without your participation. Please respond to each item with your most recent technical college experience in mind.

1. How many organized extracurricular student activities did you participate in while you were enrolled? (Count only those in which you participated an average of two or more hours per week):_____

2. Students have a variety of contacts with instructors. In the blank to the right of each statement, please estimate the number of times while you were enrolled that you met with an instructor outside the classroom for each of the following reasons. Count only conversations of 10 minutes or more:

Primary purpose of conversation:	**# of contacts**
To get basic information and advice about my program	_____
To discuss matters related to my future career	_____
To help resolve a disturbing personal problem	_____
To discuss intellectual or course related matters	_____
To discuss a campus issue or problem	_____
To socialize informally	_____

Please respond to every statement by circling the number that represents how you feel. Use the following scale: 1) strongly disagree, 2) disagree, 3) not sure, 4) agree, 5) strongly agree

	Strongly Disagree		Not Sure		Strongly Agree
3. Few of my courses have been intellectually stimulating	1	2	3	4	5
4. I am satisfied with my academic experience	1	2	3	4	5
5. I am satisfied with the extent of my intellectual development	1	2	3	4	5
6. My interest in ideas and intellectual matters has increased	1	2	3	4	5
7. Getting good grades has not been important to me	1	2	3	4	5
8. I performed academically about the way I expected I would	1	2	3	4	5
9. I have developed close personal relationships with other students	1	2	3	4	5
10. It has been difficult for me to meet and make friends with other students	1	2	3	4	5

Continue to the next page

	Strongly Disagree				Strongly Agree
11. Few of the students I have met would be willing to listen to me or help me if I had a personal problem	1	2	3	4	5
14. I am satisfied with my opportunity to participate in organized extracurricular activities	1	2	3	4	5
15. I am satisfied with my opportunity to meet and interact with my instructors	1	2	3	4	5
16. Few of my instructors are willing to spend time outside of class to discuss items of interest and importance to students	1	2	3	4	5
17. Generally speaking, my coursework is very difficult	1	2	3	4	5
18. I am very interested in the subject area I studied	1	2	3	4	5
19. It is important for me to graduate from college	1	2	3	4	5
20. It is very important for me to graduate from ***this*** college	1	2	3	4	5
21. I am active in student government	1	2	3	4	5
22. I have lots of friends who are students on campus	1	2	3	4	5
23. I am often on campus for "social" kinds of activities, rather than "classroom" related activities.	1	2	3	4	5
24. I come to school as much to see my friends as to study	1	2	3	4	5
25. I like working with other students better than working alone	1	2	3	4	5
26. I interact with friends from before I started college as much as I interact with college friends.	1	2	3	4	5
27. I often participate in student clubs and activities	1	2	3	4	5

Appendix E: Interview Guide

Interview Guide

A Technical College Student Typology: Predicting Student Persistence and Attrition
Randall L. Peters

Part One: *Confirm participant's attitudes and opinions on the first three blocks of the attrition model: background, psychological and external forces, using the survey questions as a guide for discussion:*

1. **Discuss Goal Orientation:**	Course of study will be practical and useful Course of study will meet personal needs Make more money if I finish my education Main objective is to gain new job skills College education will help me in my job The most important objective is:_____
2. **Discuss Motivation:**	Courses are high quality Specific skills I want to learn Very interested in taking courses Willing to give up some of my free time for school
3. **Discuss Commitment:**	Completing the program is very important to me Nothing can stop me now Most important self-improvement step I ever took I will be able to do anything necessary to complete schooling
4. Discuss Self Confidence:	I will have no trouble competing with other students I am confident of my learning ability May be too old to do well in college Course of study is on the right level
5. Discuss Past Experiences:	Feel well prepared for college work Meet all the course requirements I was a good student in high school I was a high school/GED graduate
6. Discuss Child Care:	My children will be well cared for Able to arrange for childcare if necessary Someone will always be able to care for my children while I am in school
7. Discuss Work:	Able to continue present job Job schedule relatively unchanging Work hours per week

8. **Discuss Finances:**
   financial aid will be adequate
   Can afford miscellaneous expenses
   Can afford tuition and fees
   Always had everything we needed
   After monthly bills, there is not much left for school

9. **Discuss Medical Issues:** In two parts: My personal medical issues
   Family medical issues

10. **(For persisters):** You had several obstacles to overcome to stay in school—how did you do it?

    Why do you think you have been able to stay in school when so many others haven't?

11. **(For withdrawals)** You had several positive things going for you—yet you had to leave school—What happened?

    Do you intend to start again?

Part Two: *Discuss the final two blocks of the attrition model, academic integration and social integration. Pay special attention to these areas; they are the critical elements that will either prove or disprove the model. Use the follow-up survey questions as a discussion guide:*

1. **Extracurricular activities:** How many extracurricular activities did you participate in? Which ones?

2. **Friends and social relationships:** Did you develop and close personal relationships at HGTC? Meet and make new friends?
   Were other students willing to listen and help if you had problems?
   Did you have opportunity to participate in activities that you wanted?
   Were you satisfied with the opportunity to meet with and interact with instructors?

3. **Academic development:** Were your courses challenging?
   Were you satisfied with your academic experience?
   Were you satisfied with your intellectual development?
   Did your interest in academic matters increase?
   Were your courses interesting to you?

4. **Academic progress:** Was your academic performance better or worse than you expected?
Was getting good grades important to you?
Were your courses difficult?
Did you feel your instructors were qualified in their field of study?

5. **Faculty Contact:** How many times did you meet with an instructor outside of class to get advice and information about your program?
To discuss job opportunities or requirements
To help resolve a personal problem
To discuss a campus issue or problem
To socialize informally

6. **Overall level of Commitment:** How important is it to you to graduate from college?
From this college?
If you return to college, will you be attending the same one?
If you return to college, will you study the same subject?
Even though you may not have completed your program, did you attain your personal objective for coming to college? What was it?

7. (for leavers): **Main Reason:** What was your main reason for leaving?
    - Medical
    - Personal problems (discuss)
    - Personality conflict
    - Finances
        - Tuition and Books, Fees
        - Other expenses not college related
    - Work schedules
    - Academic Schedules
    - Child care
    - Transportation
    - Academic performance

Appendix F: Informed Consent Agreement

Informed Consent Agreement

I agree to take part in a research study titled "A Technical College Student Typology: Predicting Student Persistence and Attrition" which is being conducted by Randall L. Peters, of the Institute for Higher Education of the University of Georgia, (local phone (478) 274-7942) under the direction of Dr. Scott Thomas, of the Institute for Higher Education of the University of Georgia (phone contact (706) 542-0577). My participation is voluntary; I can stop taking part at any time without giving any reason, and without penalty. I can ask to have information related to me returned to me, removed from the research records, or destroyed.

The purpose of this research is to understand why some technical college students are able to complete their programs of study, but others who face similar obstacles or pressures are not. The ultimate aim of the study is to try to be able to predict whether students will have serious problems that could be overcome if they received the right kind and level of assistance.

I understand that I will not benefit directly from this research, and that if I volunteer to take part in this study, I will be asked to meet with the researcher who will ask me several questions about my experience at a technical college. This meeting will not last much longer than one hour, and will most likely only occur one time, but the researcher could request a follow-up session. In this case, I will have the same choices, options and rights to participate or not in the follow-up session as I have for the original (first) session.

I understand that no discomfort or stresses are expected, and my participation entails no risks.

The only people who will know that I am a research subject are members of the research team. No information about me, or provided by me during the research will be shared with others, except if necessary to protect my rights or welfare (for example, if I am injured and need emergency care); or if required by law.

I understand that the meeting may be tape-recorded so that an accurate record of my answers can be constructed. I will have the right to review the tape, and no one outside the research team will hear the tape unless I give my expressed permission beforehand. I understand that the original tape will be erased within one year of my interview being concluded.

The researcher will answer any questions about the research now or during the course of the project, and can be reached at (478) 274-7942.

My signature below indicates that the researcher has answered all my questions to my satisfaction and that I consent to volunteer for this study. I have been given a copy of this form.

_____	_____	_____
(Name of researcher)	(Signature)	(Date)

Phone Number: (478) 274-7942
Email: randallp@hgtc.org

_____	_____	_____
(Name of participant)	(Signature)	(Date)

Please sign both copies, keep one and return one to the researcher

Additional questions or problems regarding your rights as a research participant should be addressed to Chris A. Joseph, PhD. Human Subjects Office, University of Georgia, 612 Boyd Graduate Studies Research Center, Ahtens, Georgia 30602-7411; Telephone (706) 542-3199; e-mail address IRB@uga.edu