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Social Networks, Social Identities, and Mindset of At-Risk College Students

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SOCIAL NETWORKS, SOCIAL IDENTITIES, AND MINDSET OF AT-RISK COLLEGE STUDENTS

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Success in higher education is typically measured by retention and graduation, and traditionally the students who are least likely to succeed are at-risk students. At-risk students are characterized by one or more of the following: being from underrepresented ethnicities and cultures, having low socioeconomic status, being educated in poorly funded primary and secondary education systems, being first-generation college students, or being otherwise marginalized in society. This study was designed to test how at-risk students differ from other students in terms of the size of their academic social networks, the strength of their academic identities, and their mindset, and to what extent these differences influenced their success in higher education. Data from 87 students, comprised of two intact groups used as proxies for at-risk and advantaged students, were used to test ten hypotheses. Analyses were completed on participants' demographic data and individual scores from two questionnaires, which included measures specifically created for this study, modified items from Lee's (1998), Turner's (1987), White and Burke's (1987), and Stryker and Statham's (1985) studies, and modified measures from Grant and Dweck's (2003) and Astin's (1993) studies. At-risk students had smaller academic social networks and stronger ethnic identities than advantaged students. All participants had stronger academic identities than the other identities measured (i.e.,

ethnic, SES, and gender). There were no group differences in mindset. Neither academic social network, academic identity, nor mindset affected academic performance based on data collected after the first semester in college. Generalizing the results of this study may be difficult because the academic identity of at-risk students was significantly stronger than expected, and the long-term time frame of one semester may have been too short to demonstrate overall effects on performance.

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Chapter I

Introduction

In 1923, P. W. Horn addressed a growing discussion among colleges in the United States that suggested colleges should only accept the top 10% of high school graduates. Horn gave three suggestions that argued against this contention. First, he stated that doing so seemed contrary to the American way – appealing to America's tendency to gamble – and suggested that America should give the other 90% a sporting chance. Second, he stated that limiting college to the top 10% would actually limit those who probably needed a college education the most to succeed. Third, Horn argued that a college education means more than simply teaching someone math or English. Instead, a college education is meant to develop and broaden minds, bettering our "community." After all, physicians do not turn away the sickest of patients to care for those with common colds. While I do not necessarily agree with the first point Horn suggested, I do believe his second two points are compelling. Although these suggestions were offered over 80 years ago and no formal resolution was decided upon, the general trend of today's four-year university appears to follow the very proposition that Horn argued against.

College freshman are financially better-off now than before, which is good considering that the costs of education are increasing. In terms of ethnicity, the percentage of Whites in higher education is lower, demonstrating that ethnic minorities are making up more of our college populations. According to the National Center for Educational Statistics, out of the 1,248,503 bachelor's degrees conferred in 2003, Whites accounted for 70%, whereas Blacks (8.7%), Hispanics (6.3%), and Asians (6.2%)

accounted for far fewer (Knapp et al., 2005). These statistics are considerably different from those in 1977, where out of a total of 917,900 degrees conferred, Whites (88%) accounted for an even larger proportion than Blacks (6.4), Hispanics (2.0%), and Asians (1.5%) (Digest of Education Statistics, 2007). In fact, when comparing across ethnic groups for Whites, Blacks, and Hispanics with similar levels of prior education, in recent years Blacks are more likely to attend college and earn as much if not more than Whites and Hispanics (Jacobson et al., 2001). However, the key here is "similar levels of prior education" – Blacks and Hispanics are much less likely to have attained the same level of education as Whites. In fact, in 2000, the proportion of associate's degrees earned by Blacks (10.7%) was greater than the proportion of bachelor's degrees earned by Blacks (8.7%). The same was true for Hispanics (9.1% and 6.1%, respectively), but not for Whites (72.3% and 75%, respectively) (Hoffman, Llagas, & Snyder, 2003). This difference of minorities earning more associate's than bachelor's degrees has consistently been widening (Digest of Education Statistics, 2007).

Despite the increase in the number of minorities in higher education, whether it is in four- or two-year colleges, fewer Blacks and Hispanics between the ages of 25 and 29 have obtained a bachelor's degree (Hoffman et al., 2003). In 1975, 24% of Whites who entered college would complete a bachelor's degree by the time they were 29, compared to 11% for Blacks and 9% for Hispanics. In 2000, the percentage of Whites jumped to 34%, while the percentage of Blacks also improved but was still about half that of Whites (18%). However, the percentage of Hispanics barely improved (10%). While there is clearly a difference among ethnic groups, ethnicity is not the sole issue to be considered when looking at populations that are not succeeding in higher education.

The Higher Education Research Institute (Pryor et al., 2007) reports that there is a widening gap between the lowest and highest earners in the United States. A large portion of those who are not succeeding in college are traditionally among the lowest earners because, among other reasons, they do not have the money to go to college. Historically, this population disproportionally overlaps with ethnic minority membership. So despite the increase in the number of ethnic minorities in college, the critical populations within these groups are not being reached. That is, even though the student populations are more diverse, evidence suggests that these minority students are still those with more means.

A common indicator of poverty is whether a family qualifies for free or reduced-lunch status. In 2005, 41% of all 4th graders in the United States qualified for this program, but this was disproportional across ethnicities: Whites 24%, Blacks 70%, Hispanics 73%, and American Indian 65% (U.S. Department of Education, 2006). This is important because poverty poses a serious challenge to children's access to quality education and college preparation, which ultimately affects their potential to succeed in higher education. Research has clearly demonstrated that poverty can negatively impact mental and behavioral development, not to mention overall health, which has a demonstrably negative effect on learning (Duncan, Brooks-Gunn, & Klebanov, 1994; Pollitt, 1994).

In an in-depth study and analysis of national reports conducted on poverty, the National Center for Education Statistics (Urban Schools, 1996) looked at the influences of poverty and urban schools, focusing on the changes between the 1980s and the 1990s. This study found that the proportion of minority group members in poverty increased,

children in poverty were much more likely to be exposed to and participate in risky behavior (e.g., sex, illegal substance use), these children were less likely to have a parent who completed college, these children came from larger enrollments in elementary and secondary schools (meaning larger class sizes and less interaction with faculty), and students in high poverty schools were less likely to feel safe in school and less likely to spend time on homework. This article points out that about 66% of the students in these impoverished settings graduate from high school and, of that percentage, 73% are either working or attending school full-time. However, as pointed out in the statistics above, these students are more likely to be in two-year colleges or working in jobs that pay less than their non-minority counterparts.

One reason that the findings above are very important is because of the population trends reported by Hoffman et al. (2003). In 1980, there were 180 million Whites in the United States, compared to 26 million Blacks and 14 million Hispanics. In 2000, the White population showed a modest increase to 196 million, while the Black population increased by nearly 30% to 33.5 million and Hispanics more than doubled to 32 million. The projected figures for 2050 are expected to show increasing differences (Whites, 212 million; Blacks, 53 million; and Hispanics will triple to 98 million). If the same kinds of education concerns continue to trend in the present direction, the population projections will likely create an incredibly lopsided American culture where the masses are uneducated, or at least under-educated, and relegated to lower professional stations with less earning power. This potential outcome could contribute to an America without a middle-class, where the diversity would be polarized within the ranks of the "have nots."

The average national graduation rate among universities has hovered around 50% for several years (Hodge & Pickron, 2004; Porter, 1990). Of those students who do not graduate, 75% leave in their first two years (Tinto, 1997), and most of them leave after their freshman year in college (Mallinckrodt & Sedlacek, 1987). However, it is no surprise to find that the lowest figures come from the populations reviewed above – who can be classified as at-risk students (Hodge & Pickron, 2004). At-risk students are those who live in poverty, have low levels of family support, come from poorly funded primary education systems, come from underrepresented ethnicities and cultures, or are in some way marginalized in society (Altschuler & Kramnick, 1999; Anderson, 2004; Somers & Piliawsky, 2004). Compared to the national average graduation rate of 50% for all students that start college, only 28% of the students who are in the lower rungs of socioeconomic status will graduate. It is clear that at-risk student populations are not succeeding in higher education, whether it be in four or five years. It is important for researchers to identify methods to improve upon these bleak figures. The first step that needs to be taken to improve the success of at-risk students is to understand why retention and graduation is so low for this particular population. That was the intention of the present research.

In this study, I attempted to delineate a profile based on three important elements that would explain why retention and graduation is disproportionally low for at-risk students. The three elements that comprised this profile were the students' academic social network, academic identity and mindset. First, I proposed that at-risk students would have a limited social network as it pertains to higher education, which would restrict preparation for college, the likelihood of an eventual decision to attend college,

the persistence to remain enrolled in college, and the eventual graduation from college. The second part of the proposed profile posited that the academic identity of at-risk populations would not be as salient as other identities, which means the more salient identities would be more likely to influence behavior. Thus, behavior that was not motivated to maintain academic identity would likely lead to poorer academic performance. The third part of the proposed profile posited that the mindset of at-risk populations would be fixed with regard to academic ability, which would hinder the ability to adjust to academic obstacles and ultimately succeed in college.

Chapter II

Academic Social Network

The data presented in the introduction demonstrate that at-risk students in higher education (e.g., low-income, ethnic minorities, etc.) are not as successful as their counterparts. This chapter presents the case that one factor that may play a large role in the discrepancy between at-risk and traditional students is a difference between the two groups' academic social networks. The best place to start in understanding the influence of academic social networks is to understand what they are and examine how they can facilitate success.

Academic Social Network and Success

Technically, anyone who aids, assists, collaborates, and/or shares in a student's academic experience can be considered a member of the academic social network. However, the more a person has experience in and knowledge of higher education, the greater the potential influence that person has on a student's network. In a classic comprehensive study completed in the realm of student success and retention, Astin (1993) found that the most important factors that influenced undergraduate development were student-student interaction and student-faculty interaction. Thus, academic peers and faculty are perhaps the ideal people to be included in one's academic network. However, the network need not be limited to these groups to be effective.

National research suggests that good advising is very important to student success (Cohen & Brawer, 1996; Kramer, 2003). Research in higher education has demonstrated that quality advising, which includes advisement beyond simply outlining an academic schedule, has been significantly related to student success in terms of first-year retention

rates, higher GPAs, and eventual graduation (Metzner, 1989; Tinto, 2004). George Kuh, the creator of the National Survey on Student Engagement (NSSE), found that the quality of academic advising is the single most powerful predictor of satisfaction with the campus environment for students at four-year universities. Students who indicated that their advising was good or excellent also rated interaction with faculty as positive and supportive, and they considered their overall college experience as positive as well (Kuh, Kinzie, Buckley, Bridges, & Hayak, 2006). These findings on student-student interaction, student-faculty interaction, and quality advising support the idea that a strong academic social network is a pivotal piece to a student's academic success.

Unfortunately, interaction among peers and faculty and quality advising are not always possible, due to the direct costs of such factors. When this is the case, for most students, the academic advising and academic social interaction is usually provided by other members of the academic social network – high school counselors, parents, friends, mentors, classmates, etc. Although this may not appear to be a significant issue, it may be inherently problematic for at-risk students, who I argue are most likely to have a weak academic social network. It has been established that one's academic social network can play a critical role in the level of success in higher education, so a weak academic social network can result in a distinct disadvantage. There are several factors that would suggest why at-risk students would have a weak academic social network.

At-risk Students and Limited Academic Social Networks

Students who live in poverty, have low levels of family support, come from poorly funded primary education systems, come from underrepresented ethnicities and cultures are educationally at-risk (Anderson, 2004; Attschuler & Kramnick, 1999;

Somers & Pilliawsky, 2004). Although the characterization of being an at-risk student does not include being a first-generation college student, there is a high degree of overlap between the two groups. Parents of first-generation students, who by definition do not have a college degree, are less likely to have a professional position. They are likely to have lower household income and, as can be seen in the data from the introduction, are more likely to be an ethnic minority. Thus, it is fair to assume that first-generation college students are a sub-set of at-risk students. Interestingly, the research that has been done on first-generation students supports the proposition that at-risk students have limited academic social networks.

First-generation students. According to Pascarella, Pierson, Wolniak, and Terenzini (2004), much research has been conducted on first-generation college students. This research falls into three general categories. The first research category typically compares first-generation students with other students in terms of demographic data, secondary school preparation, processes used to select colleges to attend, and college expectations. Research in this area generally suggests that first-generation students have distinct disadvantages in all of these areas compared to other students (Hossler, Schmit, & Vesper, 1999). There is also a preponderance of minorities who are first-generation college students, with Hispanics (who are the least educated minority group) having the highest first-generation college student percentage (38.2%). Overall, first-generation students are especially deficient in academic preparation, educational degree expectations, family income, and general support. This would seem to suggest that even if first-generation college students get to college, they are typically unprepared and lack financial and interpersonal support as it pertains to college.

The second category of research on first-generation college students typically looks to understand and describe their path of transition from high school to college. Terenzini, Springer, Yaeger, Pascarella, and Nora (1996) summarized this transition to be just as daunting to first-generation students as it is to other students in terms of the standard transitional woes that go along with starting college (i.e., becoming accustomed to more autonomy as a student, acclimating to the longer study hours and the more difficult assignments, etc.). However, the path of first-generation college students is further burdened with academic, cultural, and social transitions. These students are typically under-prepared academically, so the learning curve is greater. Culturally, these students have not been exposed to college life, so the information they have about college is usually limited and sometimes incorrect. Lastly, socially speaking, first-generation students are less likely to have family members who understand college protocols, so they are forced to learn the social rules anew and alone in this environment. In this sense, the academic social network of first-generation students is deficient, and this can easily lead to problems for first-generation college students.

The third category of research on first-generation college students in higher education addresses the persistence of these students in college, including ultimate degree attainment and early career labor market outcomes. In general, research has found that first-generation students are more likely to leave a four-year university after the first year, they are more likely to drop out of college overall, and they are less likely to pursue a graduate or professional degree (Choy, 2000; Warburton, Bugarin, & Nunez, 2001). As mentioned in the introduction of this paper, the two most common measures of success in college are first-to-second year retention and eventual graduation. The research on first-

generation students, which are a large subset of at-risk students in general, suggests that these students are less likely to graduate, plausibly due to the lack of a strong academic social network. Like the research on first-generation students, research on social capital, which suggests that the relationships one has with others can facilitate the transaction and transmission of different resources, provides support for the claim that a deficient academic social network could be a cause of poor performance for at-risk students.

In a comprehensive study of 14 community colleges, Deil-Amen and Rosenbaum (2003) found evidence that clearly suggests social capital, which these researchers called "social know-how," is a key factor in successfully navigating college; the retention and graduation rates of the student populations that we have identified were less than desired. Although their research focused on community colleges, where many at-risk students start their higher education, the message would prove to be as much if not more true of a four-year university. This clearly suggests that a limited social network, where the commodity of social knowledge would be sparse, affects the success of at-risk students.

Effect on success. The research cited above supports the concept that at-risk students have a limited academic social network. Intuitively it seems clear why these networks are limited for this subset of the population and how this can be a deficit as it pertains to succeeding in college: Students who come from an impoverished setting are much less likely to have family members or friends who have been to college. This does not suggest that attending college is not highly valued within the social network (Herndon & Hirt, 2006). However, there is a difference between encouraging higher education and actually speaking from experience. The factors that contribute to success in high school are not necessarily the same as those for college. High school is structured

and, for most students, is mandatory. Often times, much of the course work can be completed during school hours. For students who are very bright, high school can come very easily without much extra effort needed to succeed. In college, on the other hand, there is far less structure, and it is rare that attendance is mandatory. College requires much more self-discipline and, to some degree, drive. So, even the brightest of students can have difficulty making the transition from high school to college. If difficulty does manifest itself, the limitations in social networks may compound the issues. Most of the members of high risk students' social networks may not even have experience with successfully navigating high school, so understanding the perils and strategies needed to combat these perils in higher education may be beyond their scope.

Tyre (2006) claims that one of the most reliable predictors of whether a boy will succeed in school rests on a single question: does he have a man in his life to look up to? Unfortunately for many boys, the answer is no. In every kind of neighborhood, rich or poor, 40% of boys are being raised without their biological fathers. Tyre suggests this lack of a role model is even more important for the poor and minorities who are struggling in school because men typically aid in boys' development of self-restraint. Thus, it is not surprising to find that in neighborhoods where resources are scarce, more than half of African American boys will drop out of high school. This would explain why there are few poor and minority students in higher education as it is. However, this is bad news for at-risk students that do go on to college. We have already established that the existing academic social network of these students is less than desired. But these findings suggest that there may not be an easy opportunity to add to their existing social network similar others who have academic knowledge. Important in this equation is the

relationship with low socioeconomic status (SES). The fact that there are proportionally fewer minorities in higher education is related to the correlation of these groups and low SES.

Low-SES students. The relationship between higher education and America's poor is an interesting one. Universities originally catered to poor students, particularly state and land-grant universities. But private universities are also rooted in educating the poor. Most private universities were populated by Protestant White males who sought a life in the ministry, which typically vowed an ascetic life. So money was neither the motive for the education nor a prerequisite for admission. This has obviously changed for contemporary higher education, where costs are on the rise. Nidiffer and Bouman (2004) suggest that in the last part of the 19th century, three factors were responsible for the significant decrease in admission of poor students into American universities.

The first factor Nidiffer and Bouman (2004) propose to have resulted in the poor of America being severely underrepresented in higher education is the common university's quest for prestige. The main path to prestige, especially for nascent colleges, is to focus on research. Interestingly, with the incorporation of research as a tenant of a university, the costs associated with that university increase. This occurs for two reasons. First, research typically requires equipment and experts, both of which are costly. For a university to acquire these essentials, tuition must accommodate. Second, as stipulated by the law of supply and demand, the acquisition of research status improves a university's prestige, which also increases the cost to attend the prestigious university.

The second factor that has led to lower representation of poor students in higher education is based on the relationship of expertise and professionalism to the middle-

class ethos of universities. As the population of the United States became more urban in the late 1800s and populations increased, the cities were becoming replete with small businesses and land ownership was not an option for everyone. So, it was natural that people started investing in human rather than tangible capital to make a living. Thus, service industries came to prominence. This set the stage for the modern cycle of education – education leads to a professional career, which provides wealth enough to educate one's progeny, which leads to a professional career, and so on. Suddenly, higher education became a path for success, a kind of success that only universities could provide, which resulted in a monopoly.

The third factor that Nidiffer and Bouman link to the exclusion of the poor from higher education is the influence of Liberal Protestantism. As mentioned before, strict Protestantism was the foundation of university education, but there was a shift from religion being central to the mission to it being more of an auxiliary component of the whole university, such as a university's "Theology Department" or "Religious Studies Program." Also, American Protestantism split into two denominations during this era: traditional/evangelical and liberal. Although religion was still present among these esoteric circles, it was more of a marriage between science and religion. Although a seemingly minor change, liberal Protestantism changed the focus of the American university from broadening the minds of all, poor included, to a mission of understanding physical and social phenomena. Overall, when considering all three factors, Nidiffer and Bouman's first two points suggest why college became too expensive for the poor, and the third suggests that a climate of activism developed. Thus, according to Nidffer and Bouman (2004), universities shifted from serving the poor to studying poverty. "Sadly,

even in the 21st century, SES remains a strong predictor of who will enroll in institutions of higher education, who will persist in studying there, and who will graduate" (p. 36).

Even though there are financial supplements that aid low-income students to attend college, several characteristics of low-income students suggest that they will not take advantage of these supplements. For instance, if social networks are limited, chances are that these options are not realized. Even if low-income students are exposed to this information, these students may not see these options as worthy of their time. Poor students who are expected to pay for college are much more affected by minor differences in costs, in increments as little as $1000 (Paulsen & St. John, 2002). Even if at-risk students do investigate their options for financial assistance, the past two decades have seen a change in how higher education is paid for (Paulsen & St. John, 2002). Specifically, there has been a shift from federal funding, for both public universities and students, so universities are charging more to make up the difference, and students need to take out more loans because grants are not as available (McPherson & Schapiro, 1998; Mumper, 1996; Paulsen, 1998; Paulsen & Smart, 2001). It has been documented that changes in the federal student aid policy have been especially problematic for low-income students compared to more affluent students (St. John & Starkey, 1995). For students who do not understand or foresee the benefits of a college education, the concept of borrowing money to go to school may seem like a waste of time when full-time employment or signing up for the military provides immediate remuneration. When considering the cost of education, low-income students are more likely to choose their college based on cost instead of potential post-graduation benefits (Heller, 1997; Leslie & Brinkman, 1988; McDonough, 1997). However, even if low-income students do

ultimately apply and attend school, research has shown that they are still faced with obstacles.

Research by Paulsen and St. John (2002) found, overall, that cost-conscious middle and upper class students are more likely to persist than cost-conscious poor students. Other results they found regarding low-income students in higher education are that they are much less likely to attend private, four-year colleges, they are less likely to attend full-time, and they are less likely to live on campus and participate in common "college experiences." Thus, low-income students typically do not interact with other members of the college community.

Not all the research on low-income students was negative. Paulsen and St. John (2002) had some seemingly promising results. For instance, poor and working class students were more likely to earn As in college than their counterparts. However, one must qualify this finding by the type of institution. These students earn As in lower levels of post secondary schooling because they have lower educational aspirations than middle- and high-class students. Poor and working class students are more likely to attend community and vocational colleges. In comparison, middle- and high-class students are more likely to attend four-year institutions and persist further to attain graduate education. The data suggest that when poor students wanted to pursue a master's degree or higher, they were less likely to persist. The reasons for this are easily extrapolated from the reasons stated in this chapter as to why at-risk students do not do as well in college; the academic social network deficiencies in undergraduate work are even larger in graduate school.

Another seemingly positive result of the Paulsen and St. John (2002) research is that low-income African Americans are more likely to persist than White peers. This finding has been supported by other research, but these positive data are also qualified by the type of institution. Typically, African American students do better in historically Black colleges and universities. So, this finding would actually seem to support the claims being suggested in this paper, that strong academic social networks facilitate success, and a deficient one may be the cause of poor performance of at-risk students. In historically Black colleges and universities, new members of a social network are likely to have academic experience, adding to one's probability of success in college. However, this does identify a key aspect to this research. It is clear that academic social networks are critical to the success of students in college, and it is clear that at-risk students typically have weak academic social networks, so it would appear that these students will have to add members to their social network to increase their likelihood of success. However, social networks are entities that are not easily changed.

Adding to extant networks. Because proportionally fewer at-risk students are graduating from high school, whether because they are minorities or low-income or both, there are smaller numbers of minorities and low-income students in college. This suggests there are limited familiar social networks for these students, resulting in fewer opportunities to access information. Research indicates that race is a defining characteristic of social networks (Ibarra, 1993; 1995); minority students, particularly Black students, rely on their families for support more than do their White counterparts (Herndon & Hirt, 2006; Mallinckrodt, 1988). If there are fewer people in the social network, there are fewer opportunities for support specifically in higher education.

Herndon and Hirt (2006) discuss the need for, but the lack of, academic role models for Blacks in college. Furthermore, Astin (1993) demonstrated that students who identify with others (students and faculty) while in college are more likely to persist. This identification is less likely to happen for at-risk students simply because there are fewer people to identify with in higher education.

By having few people to identify with, at-risk students possess little cultural capital. Cultural capital is, in a sense, the similarity and familiarity one has with the dominant culture in society and represents forms of symbolic wealth that are transmitted from upper and middle-class parents to their children to sustain class status from one generation to the next (Bourdieu, 1977; McDonough, 1997; Paulsen & St. John, 2002). Examples of the benefits of cultural capital include familiarity with and access to the linguistic structures, school-related information, social networks, and educational credentials of dominant groups (Bourdieu, 1977; McDonough, 1997). When students do not have cultural capital, they are limited in their success at integrating into college and broadening their academic social network.

In their research on social networks, Mayer and Puller (2008) identified the factors that predict how relationships are formed. Mayer and Puller used Facebook, a popular internet social network used by college students, to track the formation of networks across ten public and private universities and matched their data to university data, including demographics. The results of their research are consistent with the research cited above – having academic relationships with peers positively affects one's own academic success. However, two other interesting findings did come from this research. First, there was not a large difference in the characteristics of friendships that

were newly formed. That is, when new friendships were made, they seemed to be predicated on extant similarities (i.e., religious, political, etc.). Regardless of whether two people met through a mutual friend or randomly, their friendship tended to be based in a similarity across some dimension. The second interesting finding from this research was that new social networks were highly segmented based on race. Interestingly, this racial segmentation tended to be based on the personal preferences of the students, which suggests that basic attempts by universities to promote cross-racial interaction will not be effective. In order for social networks to form across racial lines, attempts need to be made to affect the preferences of the students. For racial minority students, who have limited academic social networks and prefer to rely on their family and already established friends for support, integration into the academic community is no easy task.

The information in this chapter appears to establish that social networks are important for success in higher education, at-risk students are likely to have limited academic social networks, and expanding extant social networks for at-risk students is unlikely and difficult. Thus, there was empirical support for the proposition that one reason why at-risk students are not as successful in higher education is that their academic social networks are limited.

Hypothesis 1: At-risk students would have smaller academic social networks than their advantaged peers.

Chapter III

Academic Identity

The concept of identity is not a new one. In fact, the father of psychology, William James (1890) suggested that people possess many "selves," as many selves as the number of social groups we care about and belong to. The concept of the self was further developed in terms of its role in society by George Herbert Mead. Mead's (1934, 1938) writings on society and its effect on the individual suggest that society, and the structures that create it, shape each individual, which in turn affects the behavior of the individual, which then acts on the structure of the society – essentially creating a perpetual cycle (Fallding, 1982). Because of Mead's writings about the effect of society on the individual and vice versa, he is often considered the source of symbolic interactionism in sociology (Culler, 1982; Dunn, 1997). However, Mead's writings did not provide a testable structure, so it was not accessible to empirical research (Stryker & Burke, 2000). Since Mead's work, much of the literature and research on identity dynamics has attempted to understand the contexts and motives that drive identity and its development in a fashion that makes it more accessible. According to McFarland and Pals (2005), two general areas of social context have emerged as critical elements in identity development: category and network; similarly, two general motives have emerged: internal standards of self-efficacy and external standards of self-verification. The theories that have distinguished themselves in addressing categorical affiliation and self-efficacy motivations are Social Identity Theory (Tajfel & Turner, 1986) and Self-categorization Theory (Turner, 1987). The theories that are primary in addressing the

context of networks and self-verification in identity development are Identity Theory (Stryker, 1968) and Identity Control Theory (Burke, 1991; Stryker & Burke, 2000).

I believed that these theories could help explain why at-risk students are not successful in higher education in comparison with their advantaged counterparts. Based on the characteristics of at-risk students, I proposed that these students have identities that are not necessarily supportive of success in higher education. Due to differences in categorical and network identification, I suggested that the academic identity of at-risk students would have a lower salience. Thus, the behavior of at-risk students in higher education would be motivated by identities other than their academic identity, which would ultimately affect their success in college. In this chapter, I outlined the fundamentals of Social Identity Theory, Self-categorization Theory, Identity Theory and Identity Control Theory. I then used these theories to support the proposition that at-risk students' identity is different from that of a traditional college student, which would contribute to the lack of success of at-risk students in higher education.

Identity Through Categorization

Social Identity Theory. As mentioned above, one context in which identity can develop is through categorization. Categorization can be defined as a means to modify and reconstruct stimuli in the environment to create meaning (McGarty, 1999). Consider the sky on a clear night. To the layperson, the stars shine just as bright but appear to be random. In contrast, the astronomer will see constellations and order. Because categorization allows us to create meaning, it can be considered a fundamental element in our cognitive development (Piaget, 1954). However, while categorization creates meaning, it also creates differentiation – by developing a category based on group

stimuli, there must be at least one other group that is created composed of stimuli that do not fit into the first category. People, like stimuli, can be grouped into categories. So, at the social level, at least two groups are formed when people are categorized, an ingroup and an outgroup. It is through this context of categorization that Social Identity Theory (SIT) (Tajfel & Turner, 1986) is formulated.

SIT suggests that the fundamental aspect of identity is based on category membership. Social categories, and the traits associated with those categories, influence our identity based on our motives to identify with the traits of those categories. That is, behavior is motivated by the pursuit to maintain/build a positive self-image by identifying with categories or groups that have traits that are considered desirable. Thus, we develop a social identity, a value of ourselves derived from being a member of a group. Social identity and the pursuit of a positive self-image can cultivate ingroup bias compared to an outgroup, but this typically occurs only when the distinction between the two groups is made salient. When ingroup/outgroup distinction is salient, an individual's social identity (the part deriving from group membership) becomes salient (Turner, 1981). The stronger the link between self-value and the ingroup, the more favorable the group becomes to the individual, which enhances identity salience which is the probability that the identity will be invoked in different situations. Thus, SIT provides an explanation of how identity develops through social categorization. However, there are several categories with which a person could identify. In its original form, SIT did not address which categories would be more likely to be used.

Self-Categorization Theory. Building on SIT and on work by Bruner (1957), Self-categorization Theory (SCT) (Turner, 1987) is a theoretical explanation for how

people choose among different categories. SCT argues that there are two factors that are critical in predicting the use of categorization. The first factor is *fit*, which is defined as the match between characteristics of social inputs and category specifications. According to SCT, fit can be assessed through the meta-contrast principle, which states that a collection of stimuli is more likely to be categorized as a single entity to the degree the differences among them are smaller than the differences between them on relevant dimensions of comparison. So, if a category adequately explains the reality of a certain context, then that category is likely to be used. Furthermore, fit can be quantified. The meta-contrast ratio, the ratio of the average intercategory differences to the average intracategory differences (Campbell, 1958), can be used to measure the level of fit of a category. The higher the ratio, the better the comparative fit.

The second factor critical in predicting the use of categorization is *accessibility*. Accessibility is defined as the readiness of a category to be retrieved from the perceiver's repertoire and to be applied to stimuli (Bruner, 1957). Turner (1987) state that there are three determinants of accessibility: (a) the degree to which the ingroup/outgroup categorization is important for self-definition; (b) the perceiver's effective use of categorization in previous experiences; and (c) the perceiver's current motives, values, goals, and needs. The salience of a category depends on the interaction between its relative accessibility and fit between reality and category specifications (Bruner, 1957).

Essentially, people self-categorize by grouping themselves with others and assimilating the traits of the ingroup while differentiating themselves from outgroup members. Consequently, self-categorization can lead individuals to perceive and act in terms of their social identity and not their personal identity (Tajfel & Turner, 1986). That

is, when group membership is salient, individuals act as group members. This process is called *depersonalization*, or self-stereotyping, which is "the tendency to perceive increased identity between self and ingroup members and differences from outgroup members" (Turner & Oakes, 1989, p. 245). Interestingly, depersonalization can be quantified by adapting the meta-contrast ratio, the quantifiable measure for the level of fit for a category. This is done by including the perceived differences of the self to outgroup members and to ingroup members. Thus, the measure of depersonalization is calculated by dividing the average perceived difference of self and outgroup members by the average perceived difference of self and other ingroup members (Turner, 1987).

SCT attempts to explain identity through the context of social categories and our attempt to increase our self-image and self-efficacy by being a member of categories that have desirable traits. However, this is not the only way to understand the dynamics of identity development. According to Identity Theory and Identity Control Theory, the social networks within which we belong and their influence on our self-verification provide a different means for understanding identity.

Identity Through Social Network

Identity Theory. Identity Theory, as articulated by Stryker, is actually based on the sociological writings of Mead, but it provided a testable framework that Mead's work lacked. Stryker's (1968) intention in the development of Identity Theory was to answer the following question: Why do people choose to behave the way they do? More to the point, Stryker wanted to identify the impact of social structure on behavior by an individual and groups of individuals. Stryker suggested that the social structures outside of our social networks act as boundaries that affect our probability of choosing behavior.

This theory is consistent with the position stated by James earlier, that we have several different identities, sometimes congruent but sometimes in conflict. It can be suggested that we have as many different identities as social networks we belong to. For every social network we belong to, we have a social role or position that has its own set of role expectations attached. For instance, students in a university are expected to be intelligent, do their homework, attend class, etc. Our role choices, the set of role expectations that are chosen to act on, are functions of identity salience. That is, identities are organized in a hierarchy based on salience.

According to identity theory, people choose to enact the role expectations of identities with the highest salience (Stryker & Serpe, 1982). The salience of each identity, in part, is defined by the level of "commitment" that an individual gives to that identity. Commitment can be quantified in two forms: interactional and affective. Interactional commitment refers to the number of relationships that are involved in the identity. Because it measures the extensiveness of relationships, quantity is the defining factor. Affective commitment refers to the emotional costs of losing meaningful relations to others. Because this refers to the intensiveness of the relationships, quality is the defining factor. For both forms of commitment, the higher it is, the higher the cost of losing those relations; however, affective commitment has been found to be a better predictor of role choice than interactional commitment (Cassidy & Trew, 2004). In a nutshell, identity theory is based on the following relationships – commitment shapes identity salience, which shapes role choice behavior.

As stated earlier, people typically have several identities, but Identity Theory states that all of a person's identities fall into an identity salience hierarchy, and those

identities at the top of this hierarchy are more likely to be drawn upon in the widest number of situations. For example, the role of President of the United States is undoubtedly very salient, so despite the situation, this identity is almost always invoked. According to Identity Theory, only major changes to a person's social network within which the identity is embedded will change that identity. It is for this reason that identities and their attached salience are generally very stable across time and situations.

In its original form, Identity Theory described how social structures affect individual identity and, eventually, the individual's behavior, but it neglected the internal dynamics of self-processes. Its emphasis on a strict structure did not allow for identity variability, where group categories and the social roles associated with those categories fluctuate in meaning and status. Along those lines, identity theory traditionally did not incorporate a cognitive component that helps account for identity variability. This was considered a weakness of the theory. Identity Theory states that commitment leads to identity salience, which leads to behavior, but it was not clear how commitment to certain identities forms or how they change from the perspective of the individual. It is for this reason that researchers have modified Identity Theory to account for these limitations (Stryker & Burke, 2000).

Identity Control Theory. One theory that has built on Identity Theory to address the inner mechanisms involved in behavior is Identity Control Theory (ICT) (Burke, 1991). In ICT, the focus is on the "black box" or the internal mechanisms of self-processes that influence social behavior. In this theory, the role of emotion is more developed (Burke, 1991). By focusing on the internal mechanisms at play in identity, ICT attempts to describe the link between identity and behavior, namely how identity

operates within the contexts that it is held. Burke's ICT is based on the following four components: (a) an identity standard, which is the set of meanings, often culturally prescribed, that are held by the individual who defines her role in a situation; (b) the perceived self-relevant meanings of the situation; (c) the comparator or mechanism that compares perceived situational meanings with those held in the identity standard; and (d) the individual's behavior or activity, which is a function of the difference between one's perceptions and the identity standard. According to this model, behavior is organized to change the situation and/or the perceived self-relevant meanings in order to bring them into agreement with those in the identity standard.

According to ICT, an individual's behavior is a function of the relationship between the culturally prescribed meaning of an identity, the identity standard, and the individual's perceptions of that identity in a particular situation. When the two are congruent, positive emotions are the result, whereas negative emotions are the result when there is a discrepancy. Conflict occurs when any discrepancy is noticed. If a discrepancy does present itself, and no action is taken, then the identity salience will suffer because identities that generate negative feelings are more likely to generate lower salience, and vice versa (Stryker & Burke, 2000). So, if no action is taken, then the salience will decrease, lowering the likelihood that the identity will influence behavior. Thus, the individual is typically motivated to act. The higher the salience the higher the motivation will be to act, resulting in behavior organized to change either the situation (i.e., essentially changing the identity standard) or the perceptions of the individual to meet the current identity standard to bring about congruence.

ICT's adaptation of Identity Theory includes two aspects that affect the internal dynamics of self-processes that can affect identity. The first aspect is that behavior can be described as goal-directed because ICT identifies behavior as a function of the relationship between what a person perceives in the situation and the culturally defined meaning held by the individual. That is, behavior can change the situation in order to match meanings perceived in the situation with the meanings held in the identity standard. For example, if a student starts having difficulty once starting college, she may choose to stop going to class, which would take her out of the situation and consequently decrease the incongruence felt by performing poorly in college. The second aspect important to this model, as suggested before, is that emotions are directly incorporated into this model because they reflect the degree of congruence between the meaning of the individual in the situation and the meaning held by the identity standard. A mismatch or increasing discrepancy between these meanings results in a negative emotion; a match or decreasing discrepancy in the meanings results in positive emotions (Burke & Stets, 1999).

Academic Identity and At-Risk Students

To have an academic identity simply means that one identifies with academic performance. It is possible that some people identify themselves with poor academic performance (i.e., they pride themselves in doing poorly in class, being a rebel, etc.). However, when academic identity is used in this paper, it is associated with identification with strong academic performance. In terms of higher education, strong academic performance is based on several factors: goal-setting (Lasane & Jones, 1999), intelligence (George et al., 2008; Lahmers & Zulauf, 2001), time spent studying (George et al., 2008;

Lahmers & Zulauf, 2001), time-management (George et al., 2008), getting sufficient but not too much sleep (Lahmers & Zulauf, 2000; Peters, Joireman, & Ridgway, 2005; Trockel, Barnes, & Egget, 2000), overall physical health and diet (George et al., 2008; Symons, Cenelli, James, & Groff, 1997; Trockel, Barnes, & Egget, 2000), computer ownership (George et al., 2008), and less time in passive activities such as playing video games, watching television, and surfing the internet (George et al., 2008; Hood, Craig, & Ferguson, 1993). Because these individual factors are associated with success in higher education, these can be suggested to be traits of academic identity. Based on this definition, I believed that both SCT and ICT could be used to predict the salience of academic identity for at-risk students.

Academic Identity and SCT. The categories that form the basis for social identity in SCT are typically nomographic in nature, which constitute structure, meaning, and representational systems that are generally accepted by society (Tajfel & Turner, 1986). Recall that according to SCT, individuals are drawn to these groups to build their self-image, so categories that reflect status, permanence, size, influence, and prestige are likely to be more appealing. Thus it can be argued that academic identity could be considered a category. The traits associated with an academic identity have already been suggested to lead to success in higher education, which is linked to professional and financial success, health, power, and influence. However, I argued that in line with SCT, there are other categories that are more important in determining the social identity of at-risk students. Ascribed categories such as race, SES, and gender tend to be quite resilient (Cassidy & Trew, 2004; Lee, 1998). In these types of categorical groups, standards are learned early and pervasively, and the traits associated with these categories are difficult

to differentiate from the individual. For example, a Black female is born Black, ostensibly differentiated from others who are not Black, and cannot stop being Black. Connections with these categories can change, but they tend to do so through the lens of the early established standards. For example, in terms of gender, if a boy believes nursing is a masculine discipline but then finds out that most nurses are female, then his view of one or the other needs to change. However, because gender identity is so pervasive, the boy is probably more likely to change his view of nursing to include men as opposed to thinking women are masculine. Research has demonstrated the strength of these categorical identities.

As suggested in the introduction, many at-risk students belong to an ethnic minority, who are likely to identify strongly with their ethnicity (White & Burke, 1987). Phinney (1996) defined ethnic identity as "a complex construct including a commitment and a sense of belonging to one's ethic group, positive evaluation of the group, interest in and knowledge of the group, and involvement in activities and traditions of the group" (p.145). Ethnic identities within minority groups are typically more stable than identification with people in the majority group, suggesting further that ethnic minorities see ethnic identity as more salient than other identities, especially in comparison to members of a majority (McFarland & Pals, 2005). Further evidence to the strength of ethnic identity is rooted in the interactionist element common in identity development. As stated earlier, network homogeny is very powerful in social identification (McFarland & Pals, 2005), and ethnic groups typically have homogeny. Thus, minority group members are more likely to have a strong and stable social network within which most of their friends will belong. In fact, Ethier and Deaux (1990) found that among a population

of Latino students in Ivy League universities, most of the participants had high salience for their ethnic identity, and this identity worked as a buffer against outside threats. This effect was especially true for men. Cultural background also proved to be significantly related to self-esteem, particularly for men, which according to SCT is a key motivator for a group membership. Thus, it can be argued that ethnic identity is strong in minorities. Because many at-risk students are members of a minority group, it is plausible that membership in one's ethnic category is more salient for at-risk minorities than membership in an academic category. Another category that is likely to have a higher salience is SES.

Although it can be argued that SES influences identity throughout one's life, it is most influential during adolescence (Goodman, Huang, Schafer-Kalkhoff, & Adler, 2007). This should be no surprise because adolescence is a time when cognitive reasoning develops to include abstract thought (Piaget, 1952; 1954). Thus, we are more equipped to understand the issues associated with class differences and inequities in society. Also, adolescence is a time when students are in junior and senior high, where the student populations are much more diverse and from different geographic locations within the school district. It follows that this may be the first time that students encounter people of different SES. Furthermore, adolescence has been suggested to be the critical time for identity development, where the most important crisis adolescents have to deal with is defining who they are and who they want to be (Erikson, 1950;1968; Marcia, 1989; Marcia & Carpendale, 2004). Although it is not necessarily tangible, SES is distinguishable to most, in the car that one drives, the clothes that one wears, the leisure activities that one engages in, and the house where one lives.

In terms of its role in identity, the characteristics/stereotypes of people on the polar ends of SES are quite different. Typically, people on the high end of SES are considered to be wealthier, articulate, smarter, confident, and successful. However, on the other end of the spectrum, people of low SES have been depicted to be callous, inarticulate, uneducated, dirty, violent, etc. (Spencer & Castano, 2007). Unfortunately, these stereotypes manifest themselves in academic statistics, in terms of the degree attainment, professional attainment, and income. SCT would suggest that at-risk students would not want to identify with SES, mainly because they are likely to be on the negative end of this category that is mostly associated with qualities that may play against maintaining self-image. However, research has demonstrated that when made salient, the ascribed nature of SES can have a direct effect on academic performance.

Spencer and Castano (2007) evaluated forty-six college students from several different colleges to understand the potential effect of SES on academic performance. The researchers conducted a 2 x 2 factorial design experiment where participants were given one of two timed tests. One test was a verbal intelligence test, the verbal section of the GRE, and the other test was a verbal perception test, an evaluation of a composition piece. For each test, the salience of SES was manipulated by asking participants to report their parents' income either before they took the test or after. The results demonstrated that when SES is not salient, low-SES and high-SES participants performed similarly. However, when SES was made salient, students with low SES performed significantly worse than the other groups, in both low- and high-SES. However, there was no difference in academic performance among high-SES participants, whether or not SES was made salient. The results of this study clearly demonstrate that if one identifies with

low-SES, this identity can negatively affect their academic performance. Although this seems counter-intuitive to SCT, it is consistent with the theory. The strength of ascribed categorical identities tends to remain influential in behavior. If membership in the group is not desirable but ascribed, such as low-SES, making the membership salient may be even more compelling. Another ascribed category that is likely to be stronger than academic identity is gender.

The research on gender identity provides interesting insights, specifically in terms of its effect on academic performance. Lee (1998) attempted to explain the pervasive gender differences in science, math, and engineering (SME) classes by measuring academically talented high school juniors and seniors in the following areas: own self-concepts, perceived perceptions of SME students, own interests in SME disciplines, and encouragement from social networks in SME pursuits. The study then evaluated discrepancies between these areas. The results indicated that girls' self-concepts are more discrepant with their perceptions of SME students and more congruent with perceptions of same-sex others, discrepancies between self-concepts and disciplines correlate with lower interest in SME disciplines, and to a degree gender differences are explained by discrepant variables. These results clearly suggest that students' internalized meanings about self and about others affect interest in and motivation to seek out SME experiences. In other words, gender membership is a key factor in the discrepant performance in SME classes for males and females.

The participants in Lee's study were academically talented in SME and were chosen to participate in special SME programs at local universities, suggesting that they had an interest and strength in SME, meaning that they had developed an identity with

the academic category. However, although they were all strong students, their gender influenced their academic performance. This finding is potentially significant knowing that the characteristics of gender and other categorical identities such as ethnicity and SES are similar. That is, it is reasonable to assume that if gender is as pervasive as ethnicity and SES, then the ascribed membership into these categories would be powerful enough to affect behavior as it relates to academics.

Interestingly, it could be argued that salience in the above mentioned categories is not only stronger than in the academic category for at-risk students, but the categories may also be in direct competition. It has been suggested here that the social networks of at-risk students do not typically include an academic element. In fact, to be academic may be counter-cultural and sometimes perceived as negative. As Postmes and Branscombe (2002) suggested, minorities who are upwardly mobile may feel like traitors among their ethnic networks. The same could be said for people of low-SES, and it has been demonstrated that an academic inclination, particularly in SME, is not reinforced by gender stereotypes. Thus, this may prove to be another factor that could motivate at-risk students' behavior to the detriment of maintaining or strengthening the salience of their membership in the academic category, which may ultimately lead to poorer academic performance.

Hypothesis 2: Comparative Fit – There would be a group difference with regard to how the students distinguished categorical differences between "Academic" and ethnicity, SES, and gender. At-risk students would not see a fit between the three ascribed categories and the academic category, while advantaged students would see them as the same.

Hypothesis 3: Depersonalization – Participants would be more likely to take on the perceived characteristics of members in the ascribed categorical groups of ethnicity, SES, and gender compared to membership in an academic category.

Hypothesis 4: Accessibility – Accessibility to membership in ethnicity, SES, and gender would mediate membership in the academic category, such that when membership in the former categories was made salient, depersonalization for membership in the latter would decrease.

While SCT emphasizes social categorization to explain how behavior can be motivated by social identification, other identity theories focus on behavior that is motivated through people's social networks.

Academic Identity and ICT. According to Identity Theory and ICT, the roots of identity formation are based in social networks. Based on the information outlined in Chapter Two, it can be argued that at-risk students have weak academic social networks, which would suggest that they have a low salience for academic identity. If at-risk students do indeed have an academic identity with low salience, according to Identity Theory and ICT, that identity would be less likely to motivate behavior if a discrepancy arose. Thus, success in higher education would not be as likely, which is consistent with the low retention and graduation rates outlined in the introduction. In summary, a case has been made that at-risk students have weak academic social networks and that as a consequence they will have an academic identity with a low salience. The body of research cited supports this proposition.

Burke and Stets (1999) found that several people who interact in a common situation mutually tend to verify each other's identities, and commitment to each other increases as they begin to view themselves as a group or social network. Ethier and Deaux (1994) termed this process, of maintaining and strengthening commitments, as remooring. In contrast, if a person interacting in a situation has difficulty verifying her identity, the existing identity is broken and the social structure, or network, dissolves. In the case of at-risk students, I have argued that the academic social network is lacking. This suggests that there is little probability that their academic identity is able to be remoored, resulting in a weak if existent academic identity.

McFarland and Pals (2005) evaluated the influence of motives in identity change among 6,000 high school students. They found that social network characteristics were the most important elements regarding changes in identity. This suggests that relationships within already established social networks play a critical role in identity development. Interestingly, the dynamics of one's identity played only a minor role in determining which group these adolescents joined. This is a very important finding because it suggests that social networks are the source of information for students when they make a mistake as well as a crucial element in their identity development. External identity imbalance exerts a larger influence than internal imbalance – when others see us as belonging to a different group than we actually do (or think we do), that has a stronger influence than when we feel we do not belong in a group. This could also support the claim that when students do well in high school and are thought of as a smart by their friends and family, then they may consider themselves as smart.

However, college, in particular the first year, confronts students with new and challenging social and intellectual situations, which may have students question how they see themselves (Cassidy & Trew, 2004). If their academic identity is challenged, it us unlikely that they will share it with their social network. However, the incongruence between their perception and the identity standard will remain. But due to the importance of the social network, they will be less motivated to assimilate their perceptions with the standard. It is possible that the adolescent would see herself as smart despite evidence to the contrary because of the strength of her social network. This position suggests that regardless of the strength of the identity among adolescents, the social network could be overwhelmingly influential in their behavior. The key analysis of the McFarland and Pals (2005) paper is that people's social networks may overpower their newly formed identities and are key determinants of their eventual identity salience.

If one's academic identity is verified among one's social network, it will make it easier to build commitment within the network and add to the academic social network. However, minorities and other at-risk students, whose academic identities are not as salient as other identities, are not likely to verify their current academic identity with others in an academic setting. Thus, remooring of their academic identity will not take place, commitment will not build toward others in their situation, and their academic social network will not be fortified, almost certainly affecting their academic performance in higher education. Serpe (1987) demonstrated support of this in a longitudinal study with new students in a university. Serpe found that students attempt to join organizations that are in accord with salient identities before entering the university. When successful, identities stay stable and may be reinforced. However, when

unsuccessful, when opportunities that promote or strengthen salient identities are not found or not taken, the salience decreases. The result is behavior that is not motivated by these identities. Thus, it can be suggested that due to the lack of an academic social network, at-risk students are not likely to have a strong academic identity. If so, building upon a weak academic identity can be even more difficult because adding to one's social network and strengthening an identity is not an easy task.

There is power in network homogeny for developing identity (McFarland & Pals, 2005). When a higher percentage of one's friends belong to the same social network, the effect of social control on that student's identity is stronger. That is, if all of one's friends are in the same group, it is more likely that the student will keep the beliefs of that group. Although not directly suggested as such, this phenomenon is consistent with consensual validation. According to Santrock (2008), consensual validation occurs when people form bonds with others who have similar attitudes and exhibit similar behavior because it validates their own attitudes and behaviors. This is typical among minority groups, whose members are more likely to have fewer strong and stable social networks within which most of their friends will belong. Thus, social control of the identity of minorities will be stronger. Because the social network is not as likely to be concentrated on academic success, academic identity will not be as strong. Thus, for at-risk students, their identity that is formed from stable and resilient social networks is not as likely to include an academic component. Furthermore, introducing an academic element to one's social network that is not already present has proven to be difficult.

In studying the characteristics of social networks that were cultivated on the internet across ten universities, Mayer and Puller (2008) found that simply exposing

minorities to an academic social network is ineffective as a means to affect internalized concepts. This finding supports other research that suggests that simple encouragement from one's social network is not effective in reinforcing a less salient identity (Lee, 1998). The social network needs to be knowledgeable, ideally through experiential means, so that the identity is modeled. More to the point, in terms of academic identity, it would appear that simply stating that school is important is not enough. In order to affect the salience of a person's academic identity, and eventually the motivated behavior, the identity standard must be demonstrated. To actually see that people within one's social network are a part of the identity standard and to identify with these people are keys to eventual success. However, self-concepts are very resistant to change, especially in the absence of change in the social network. At-risk students do not typically have academic role models in their social networks, which would suggest their academic identity is weak and less stable. In general, it is reasonable that the lack of an academic social network among at-risk students would result in an academic identity with a low salience. According to ICT, this in itself will not affect behavior; a discrepancy has to occur for behavior to be motivated. However, discrepancies with academic identity invariably occur for at-risk students while in college.

According to Cassidy and Trew (2004), the first year in college confronts all students with new and challenging social and intellectual situations, which may have students question how they see themselves. This is even more so for at-risk students. The rigor of education leading to college has been demonstrated to be less than adequate for at-risk populations (Altschuler & Kramnick, 1999; Anderson, 2004; Somers & Piliawsky, 2004). Also, at-risk students are less likely to spend time studying than their

counterparts and are likely to be first-generation college students, so it is more likely that they will not know what to expect in college in general. Thus, it is fair to assume that the identity standard, what it takes to succeed in college, is likely to be different from the perceptions that at-risk students have. These differences are likely to come out because the learning curve is likely to be greater, the lack of "fitting in" culturally and socially with the college environment will be apparent, and getting an education is likely to be at conflict with other identities with a high salience. This is supported by research that has found that, in comparison with their counterparts, the academic persistence of minorities and poor students is affected significantly more by their grades (Pascarella & Terenzini, 1991, 2005). This suggests that grades are highly associated with the academic identity standard. For students who do not match the standard in other ways, even minor differences in the areas that do match the standard can incite significant discrepancy. Such discrepancies between the standard and the perception will motivate behavior to correct the incongruence. In fact, the more heterogeneous the environment, the more salient the students' identities will become. So, those identities that are less salient will play less of a role in the students' behavior.

This is not to say that each behavior of at-risk students will always be to the detriment of their academic performance. On the contrary, I implicitly suggested that the students whom I referenced have a positive academic identity, which is why they are in college – if they had a negative academic identity, such that they thought they were bad students, any conflicts would actually reinforce that negative identity. However, I argued that their academic identity would not be as salient as others. So, with every behavior that did not strengthen the commitment to an at-risk student's academic identity, the more

likely the behavior would go against it. Recall that in Stryker's model, commitment to one's identity is what shapes the identity salience, and it is the identity salience that shapes the role choice behavior. When identities are in conflict, the identity with which an at-risk student is most committed is the one that will be most likely to motivate the student's behavior. This is supported in terms of academic ethnic identity by Ethier and Deaux (1994), who found that students who had ethnic identities with low salience were less likely to establish or reinforce their ethnic social network, which was followed by a weakening of their ethnic identity. When the ethnic identity of these students was threatened, through debates on ethnicity or affirmative action, their identities did not act as a base for behavior. If the same effect is true for academic identity, this could certainly lead to counter-productive behavior in terms of success in higher education.

I hypothesized that at-risk students would have a lower salience with and a lower commitment to their academic identity, so it would not be remoored or fostered, which would ultimately lead to its decrease in salience and commitment, and subsequently to a decrease in performance. I also hypothesized that the difference in salience and commitment in academic identity would not be shared by advantaged students, which would support the finding that advantaged students perform better in higher education. If the following hypotheses were correct, then this would provide a reason behind the lack of success among at-risk students in higher education.

Hypothesis 5: Compared to advantaged students, the academic identity of at-risk students would have lower salience than ethnicity, SES, and gender.

Hypothesis 6: Compared to advantaged students, the commitment to academic identity of at-risk students would not be as high as the commitment to ethnicity, SES, and gender.

Chapter IV

Entity versus Incremental Theory

Theories regarding implicit beliefs suggest that people's core assumptions about the world serve as heuristics that guide the way people understand information about themselves, others and the behavior of both. Essentially, our core assumptions can be considered perspectives on life that provide a lens through which we make sense of our world. However, these core assumptions are hard to measure just because they are *implicit*. Most behaviors can be considered motivated, but oftentimes people are unaware of the assumptions that have guided their behavior. Even when analyzed, it is difficult to articulate why we act the way we do. Despite the inherent problems with research on implicit theories, the topic has intrigued philosophers and psychologists alike.

Some of the earliest musings on the internal, implicit personal assumptions about the world we live in come from Alfred North Whitehead's (1938) identification of differing world views. Whitehead suggested that there are two distinct world views a person can adopt, the static world view and the dynamic world view. Each world view distinguishes itself by its ontological assumption about the nature of reality, to be either static or evolving, and its epistemological approach to understanding that reality, by quantifying and measuring its unchangeable qualities or by analyzing the ever-changing and complex processes. A similar dichotomous theory of the way people implicitly perceive the world was offered by Pepper (1942). In his book, *World hypotheses: A study in evidence*, Pepper offered a total of six views, which have since been filtered down into two essential views, a more static view with fixed elements that are based on a more simple cause-and-effect law system and a more dynamic system characterized by

change, context, and process (Johnson, Germer, Efran, & Overton, 1988). More recently, psychology has articulated and supported a model of implicit research that is similar to the above approaches but carries more significance in terms of model development, measurement and behavioral understanding: entity versus incremental theoretical perspectives (Dweck, Chiu, & Hong, 1995b).

Entity Theory and Incremental Theory are opposite perspectives or "mindsets" that people use to process social information (Dweck, 1999; Dweck, Chiu, & Hong, 1995b). Depending on the type of mindset one employs, different cognitive, affective, and behavioral responses result (Dweck, 1991). One area that is clearly affected by the different mindsets is achievement motivation, which is influenced by one's goal orientation (Dweck, 1986). In this chapter, I describe each theory and highlight their differences. I then explain the link between the mindset and achievement motivation. I also highlight other distinguishing elements of entity and incremental theorists. Lastly, I make the case that at-risk students in higher education are implicitly entity theorists. This perspective assists in creating a profile for at-risk students that explains why they do not perform as well in higher education.

Entity and Incremental Implicit Theories

The work on the entity and incremental implicit theories is recent, relatively speaking. In fact, the current entity and implicit theory model evolved from research in the early 1980s on a motivational model in which goals were the central constructs (Dweck & Elliott, 1983; Dweck & Leggett, 1988). The roots of entity and incremental theories themselves are based on Kelly's (1955) Theory of Personality and Heider's (1958) Field Theory of Perception (Dweck, Chiu, & Hong, 1995a). Kelly's Theory of

Personality states that a major component of personality is the naïve assumptions we have about our selves and our social reality, and these naïve assumptions guide the way we process information about ourselves and others. Similarly, Heider's Theory of Social Perception states that our latent theories of personality guide the way we perceive and process social information. From these theories and several research studies throughout the late 1970s and 1980s, the formalized implicit entity and incremental perspectives took shape.

Individuals with an entity mindset attempt to understand behavior based on personality traits which are stable, so behavior is perceived to be fixed or nonmalleable. Under this implicit position, people see individual characteristics, such as intelligence and morality, as representations of the person. Thus, intelligence and morality are fixed and unchangeable. An entity theory of intelligence, for example, would state that people's intelligence will remain the same throughout life (Dweck, Chiu, & Hong, 1995a). This is not to say that people will not learn new things, but their inherent, underlying intelligence will not change. People in this mindset tend to focus on trait judgment, thus they do not usually respond well to feedback or outcomes that run counter to their already-established perceptions.

In contrast, individuals with an incremental mindset attempt to use specific situations and how individuals are influenced by specific situations to understand behavior. Thus this approach looks at outcomes as malleable. Under this implicit position, people would consider intelligence and behavior as qualities that can be directed or trained. Thus, in an incremental theory of intelligence, it is believed that people can cultivate and grow their intelligence. In this model, the mediating factors would be

considered, such as the needs, goals, intentions, emotional states, prior behaviors, exerted effort, etc.(Dweck, Chiu, & Hong, 1995a). People with this growth-oriented mindset tend to focus more on reforming and educating. Thus, both confirming and disconfirming evidence with regard to established perceptions are met with more positive or resilient attitudes, resulting in sustained or increased effort.

Implicit Theories and Achievement Motivation

Early research on entity and incremental theories conducted by Dweck (1986) found that these mindsets can lead to adaptive and maladaptive achievement motivational patterns via the different goal orientations that are associated with each mindset Entity theorists tend to have performance goal orientations, which are a part of a more general class of goals called judgment goals (Dweck, Chiu, & Hong, 1995b), where the goal is to gain positive judgments and avoid negative judgments of competence. This perspective places the emphasis on fixed ability level, suggesting that certain characteristics, such as intelligence, are innate and unchangeable. It is the fixedness aspect that has led researchers to label this goal orientation as a fixed mindset. People with a fixed mindset with regards to intelligence would feel that we were born with a certain level of intelligence that cannot be increased or decreased. In this situation, the level of confidence is critical for students to be mastery-oriented, seek challenge, and persevere (deCharms & Carpenter, 1968; Meyer, Folkes, & Weiner, 1976; Nicholls, 1984). These more adaptive behaviors only occur when confidence is high and is able to be sustained. If confidence is low, then it is more likely that these students will either avoid the situation or demonstrate withdrawal behavior once difficulties present themselves. For example, a fixed-minded student having difficulty with algebra would be inclined to

believe that s/he does not have the ability to do algebra. Once difficulty presented itself, this student's confidence would decrease, resulting in a lack of persistence in this task when engaged because s/he would feel that more effort would be futile. Furthermore, the student would be motivated to avoid this and similarly difficult tasks that showcased the lack of ability.

However, the fixed mindset is not only problematic for people with a low level of confidence in the subject matter. The key aspect of maintaining a mastery-oriented perspective from a performance or fixed mindset is that the high confidence level must be sustained – a very difficult qualification. Most new tasks will produce negative feedback if for no other reason than the novelty. Performance-minded people are likely to interpret difficulty as indicative of a lack of ability and predictive of future performance (Ames, 1984; Dweck, 1986). The confidence of these individuals in particular will be shaken, and thus their orientation will switch from mastery to helplessness, where they will tend to avoid new challenges and have lower levels of persistence going forward.

People with fixed mindsets find that their satisfaction with task outcomes is linked to their performance. If they feel they have demonstrated their ability successfully, they are satisfied. However, regardless of the amount of work they exerted, if they do not achieve their goals, they see it as failure. Ironically, more effort exerted can result in negative outcome satisfaction because it suggests low ability, even if the goal is achieved (Surber, 1984).

For these reasons, fixed-minded individuals tend to take on challenges that they know they can handle. Or, interestingly, these individuals will take on overly difficult challenges, those that they will have very little probability of mastering. This latter

position may seem counterintuitive, but it follows the model. If an overly difficult challenge is taken, the odds are that the person will fail regardless of the amount of effort given. Thus, the performance-minded individual can discount failure. Failing an extremely difficult task would clearly not be because the person did not have the ability, so self-confidence and self-concept can be salvaged. In fact, the unlikely event that the person actually successfully completed the overly difficult task would be even more tempting to the performance-minded individual. After all, this type of person feeds off of demonstrating ability. So, accomplishing a task that was unlikely would suggest a high level of ability. Such a situation is ideal for a person with this mindset. These patterns of behavior are obviously maladaptive and can lead to poor academic performance, anxiety, and even greater avoidance behavior, not to mention a lack of learning overall (Ames, 1984; Diener & Dweck, 1978; Nicholls, 1975).

In contrast to entity theory orientation, incremental theory promotes a learning goal orientation, which is part of a larger class called development goals (Dweck, Chiu, & Hong, 1995b) where the focus is on progress toward and mastery of the goal and understanding through hard work and effort. The focus in this orientation is on growth, which is why researchers refer to this orientation as a growth mindset. In the growth mindset, people are mastery-oriented, seek out new challenges, and maintain high levels of persistence when their confidence in the task is high **and** low. This is because a growth-minded person believes that personality characteristics are malleable. So, with effort, incremental theorists believe growth can occur. Interestingly, pride, confidence, and satisfaction with outcomes are developed and increased based on the amount of effort exerted toward goal attainment in a growth-minded approach. This is a sharp contrast

from the performance mindset, where greater effort in a task suggests a lack of ability, consequently decreasing pride, confidence, and satisfaction.

With regards to intelligence, a person with a growth mindset would actually seek out new and challenging tasks to test and grow his/her knowledge. For the growth-minded person, obstacles identify areas for improvement instead of lack of ability. So, instead of suffering from lowered persistence and avoidance behavior, the growth-minded student will work harder to overcome an obstacle. Commonly, the result from higher degrees of effort toward overcoming the obstacle is higher self-confidence, even if the obstacle is not completely overcome. For growth-minded individuals, satisfaction with outcomes is largely based on the amount of work they exerted. For example, performance-minded students would be overjoyed to easily complete a homework assignment with little effort, which would indicate high ability, while growth-minded students would find the lack of challenge as a letdown (Dweck, 1986). Thus, a learning goal orientation or a growth mindset is often paired with adaptive learning patterns, such as challenge seeking, persistence, and task enjoyment (Ames, 1984; Diener & Dweck, 1978; Nicholls, 1975). Table 1 outlines a model proposed by Dweck (1986) that demonstrates the relationship between implicit theories and actual behavior.

Research on this model has demonstrated distinct differences with respect to mindset and academic performance. First of all, coping behavior addressing setbacks or failures tends to be more positive among incremental theorists (Hong et al., 1999). This is because incremental theorists are more likely to attribute any failures to their effort and not to their innate ability. Thus, incremental theorists are more likely to engage in remedial action to improve their performance after a setback. Also, because of the

differences in goal orientations between entity and incremental theorists, the effect of intrinsic motivation is different. Traditionally speaking, goal-setting research has demonstrated that intrinsic motivation is an invaluable commodity when it comes to achievement. Intrinsic motivation among entity theorists, who have a performance mindset, is undermined because uncertainty and challenge tend to produce avoidance behavior. On the other hand, incremental theorists tend to see intrinsic motivation as a by-product of their mindset. The onset of a new challenge reinforces their effort, so intrinsic motivation is built into the system.

In terms of academic performance, an area that is usually a measuring stick of effectiveness is the ability to transfer knowledge. In a study that followed a group of early adolescents in their science classes, Dweck (1986) found three conclusive results with regards to transference of knowledge: (a) students with a growth mindset achieved significantly higher scores on exams that tested the transfer of knowledge, even when controlling for pretest scores; (b) growth-minded students produced about fifty percent more work on their transfer tests, suggesting they were more active in the learning process; and (c) growth-minded students produced more rule-generated answers on their tests, suggesting a deeper understanding of the fundamental aspects of the work. Related to the topic of transference of knowledge, growth mindsets have also been linked to transitional success across different grade levels. Henderson and Dweck (1990) found that students who were transitioning into junior high and endorsed more of an incremental view had a distinct advantage over those who had an entity view, earning significantly higher grades while controlling for prior achievement. This is an important element, especially considering that adolescence is a time of rapid maturational changes,

Table 1

Achievement Goals and Achievement Behavior

Theory of Intelligence		Goal Orientation	Confidence in Ability
Entity Theory (Fixed Mindset)	→	Performance Goal (Gain positive judgment/ Avoid negative judgment)	If high → Mastery-oriented (Seek challenge, high persistence) If low → Helpless (Avoid challenge, low persistence)
Incremental Theory (Growth Mindset)	→	Learning Goal	If high/low → Mastery-oriented

changing societal demands, and more challenging academic expectations. It suggests that incremental theorists are better equipped to deal with changes and challenges.

As demonstrated above, adaptive learning patterns lead to better coping behaviors, intrinsic motivation, transference of knowledge, and transitional changes; whereas maladaptive learning patterns promote avoidance and withdrawal from challenges (Dweck, 1986). So, while the former promotes adaptation and growth, the latter tends to inhibit growth. Thus, according to the analysis just presented, one's overall ability and performance is affected by the type of learning patterns that are espoused, regardless of initial ability. These learning patterns are influenced by mindset.

Kangas and Bradway (1971) demonstrated in a 38-year longitudinal study of participants' IQ at four different ages, starting around the age of four and ending around the age of 41, that IQ scores increased significantly for all levels of intelligence for both genders, except for bright females. All other groups showed between 15 and 30 point increases in IQ, which is one to two standard deviations higher, whereas bright women only gained about five points. The paper suggested that the reason for the significant difference in IQ is because of maladaptive learning patterns based on different motivational factors. This has been corroborated in research that has evaluated gender differences in academic performance, particularly in English and math courses. Girls, especially bright girls, are more likely to have a performance mindset, which can be attributed to the disparity between their success in math and that of the learning-oriented boys (Dweck, 1986). Dweck suggests that the differences in learning patterns and motivation are based on the different mindsets, which also would explain why girls continue to excel in verbal achievement while losing ground in math. Dweck notes that

after grade school, math continues to change qualitatively (e.g., algebra to geometry to calculus, with each relatively dependent but distinctly different from the other), which will continue to challenge students. However, the base of knowledge in verbal skills changes very little qualitatively after grade school. Thus, a performance-minded girl would be more leery of taking on a new, challenging math course but would feel fairly confident of continuing to quantitatively add to her skill in verbal achievement. In contrast, growth-minded boys would enjoy the challenge of a new math course.

This pattern of differences between fixed-minded and growth-minded students should easily translate into success in college. College presents students with several new challenges. Those that accept and look forward to these challenges should prosper in college, whereas those who shy away from situations that may call into question their ability will not fare so well. Consistent with this analysis, Mangels, Butterfield, Lamb, Good, and Dweck (2006) found that students with fixed mindsets with regards to intelligence are much more likely to feel vulnerable to negative feedback and likely to disengage from challenging learning opportunities. On the other hand, growth-minded students bounce back much better from occasional academic failures. When faced with negative feedback, fixed minds decrease their efforts while incremental minds increase their efforts. In fact, when the opportunity to fail or to avoid presents itself, the differences between mindsets appear. Niiya, Crocker, and Bartmess (2004) found that students with a growth mindset are more resilient to self-concept threats, particularly as they pertain to academics.

Although most of the research on entity and incremental theories has been consistent since the development of this model and incremental theory appears to be the

more positive perspective, some researchers have questioned whether a fixed mindset always leads to maladaptive learning patterns (Barron & Harackiewicz, 2001; Elliot & Church, 1997) and whether a growth mindset is always the preferred choice (Barron & Harackiewicz, 2001; Elliot & Church, 1997; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000). In fact, El-Alavli and Baumgardner (2003) tested whether manipulating the context could affect the different orientations. They found that when a performance goal is emphasized as the desired outcome, entity theorists actually increased their effort on failed tasks whereas incremental theorists had decreased efforts, which would seemingly go against the model represented in Table 1.

In an effort to address some of these criticisms, Grant and Dweck (2003) conducted five separate studies. Through factor analysis, Grant and Dweck clearly differentiated four different types of goals. The first type was labeled *learning goals*, which focused on learning and challenge-mastery that is typically associated with a growth mindset (e.g., "I strive to constantly learn and improve in my courses"). The second type was *ability goals*, which focus on personality traits and are typically associated with a fixed mindset ("It is important to me to confirm my intelligence through my schoolwork"). The third type of goals was *outcome goals*, which focused solely on the outcome of a task and not exclusively associated with either a growth or performance mindset (e.g., "It is very important to me to do well in my courses"). The last type was *normative goals*, which focused on comparing one's own ability or outcome to that of others (e.g., "It is very important to me to confirm that I am more intelligent than other students" or "I try to do better in my classes than other students"). The authors tested 10

items related to each type of goal for internal consistency, test-retest reliability, and construct validity.

Using Cronbach's alpha, they found that each of the four categories had an average reliability of .86, ranging from .81 to .92. The test-retest reliability had an average of .79, ranging from .69 to .88. The authors tested the construct validity of the four types of goals by correlating the learning goals with Button, Mathieu, and Zajac's (1996) Learning and Performance Orientation Scale and Elliot and Church's (1997) Achievement Goal Scale. Each of the correlations was strong, with correlations ranging from .30 to .83, $p < .05$ or better. After demonstrating reliability and validity, the authors chose the three most reliable items of each group and tested their relationship with responses to failure.

As would be expected, learning goals significantly negatively correlated with the loss of intrinsic motivation and withdrawal of time and effort while being significantly positively correlated with planning. These are all traits consistent with adaptive learning patterns. Thus, it is no surprise that learning goals were also significantly correlated with actual performance, as well. Ability goals were significantly positively correlated with responding to failure by losing intrinsic motivation and withdrawing time and effort, both of which are maladaptive learning patterns. The results with regard to goals that are typically associated with growth mindsets and fixed mindsets, respectively, are consistent with the model. However, the results on the other two types of goals are not consistent.

Interestingly, outcome goals were significantly positively correlated with responding to failure by losing intrinsic motivation **and** seeking out help. The characteristics associated with outcome goals are both maladaptive and adaptive. Even

when clearly worded, outcome goals, wanting to do the task well, garnered mixed results, suggesting that they can be grouped with either learning goals or performance goals, depending on how the reader interprets the question or on the implicit theory triggered in the context. Another interesting finding was that the normative goals were not predictive of any adaptive or maladaptive traits. Taken as a whole, the findings regarding the four types of goals not only strengthen the position of the implicit theory model, but they also provide an explanation of why some research has demonstrated disparate findings. Many of the criticisms of the entity and incremental theory model were based on research findings that were seemingly contradictory to general findings illustrated in Table 1. Grant and Dweck (2003) found that much of the research that reported contradictory findings used a mixture of the four types of goals. As illustrated, outcome goals, which could easily be mistaken for performance-oriented goals, would easily produce inconsistent results.

Another important finding from Grant and Dweck (2003) was that the more important and difficult the goal, the more effective the learning goal was in adaptive learning patterns and actual performance, the latter seemingly mediated by the depth of processing of the material to be learned. In terms of ability goals, the researchers found that ability goals are strongly associated with maladaptive learning patterns and eventually poor performance, particularly after several setbacks. However, the negative characteristics associated with ability goals do not tend to manifest as long as the person is doing well or still has the possibility to succeed in demonstrating ability. This is consistent with the research on the relationship between confidence and having a

performance mindset. Provided that confidence is high and can be sustained, a performance-minded person will seek challenge, persist and be mastery-oriented.

While Grant and Dweck (2003) addressed the contradictory results found in some of the entity and incremental theory research, other criticisms have been voiced about longer-term effects of implicit theories on goals and achievement (Harackiewicz & Elliot, 1995). Almost all of the studies on this implicit theory model were one-time comparisons, which did not address the issue of the potential lasting effects of the different implicit theories. Another element that has been missing in the research on implicit theories is whether teaching an incremental theory to students can be an effective longitudinal means of improving students' grades.

To address these and other issues, Blackwell, Trzesniewski, and Dweck (2007) conducted one of the only longitudinal studies on entity and incremental theories to track the trajectory of grades in students over time. In two studies, the authors tracked 373 seventh graders through two years of junior high. In the first study, they measured implicit theory orientation, goal orientation, beliefs about effort, and attributions and strategies in response to failure. The results of study one, consistent with previous research on implicit theories with a non-longitudinal data set, indicated that the different implicit theories did indeed have different motivational patterns. Specifically, they found that students with an incremental theory of intelligence demonstrated an upward trajectory with regard to their grades. In contrast to this, students with a performance mindset demonstrated a flat trajectory and students in the control condition had a downward trajectory. The second study focused on whether teaching an incremental theory of intelligence would promote more adaptive learning patterns and motivation

longitudinally, and in turn result in higher achievement similar to that found in study one. The sample they used for the second study consisted of 99 students who were lower achievers and potentially more likely to be labeled at-risk students, ideal to understand whether a learned incremental theory has an effect on achievement. The results of the second study did, indeed, demonstrate the same effects, suggesting that the effects of the different mindsets are longitudinal and can affect actual performance.

Overall, both Grant and Dweck (2003) and Blackwell et al. (2007) addressed many of the criticisms of the entity and incremental theory model and provided further support for it. It is clear that there are stark differences between the two implicit theories. The focus on ability from a fixed mindset typically results in a tendency to avoid and withdraw from challenges, while the focus on effort from a growth mindset cultivates a tendency to seek out challenges and motivates behavior. Along with these fundamental differences, research over the last few decades has identified other features that differ between the two implicit theories.

Notable Differences Between Entity and Incremental Theorists

Although the following items are numbered, they are in no particular order. These are simply important distinctions that research on entity and incremental theories has identified.

1. Research has indicated that entity theorists are more likely to make snap judgments about personality traits in themselves and others (Dweck, Chiu, & Hong, 1995a). This is most likely because entity theorists feel that these traits are fixed, so a demonstrated trait is a constant trait in their eyes. For example, an entity-mindset student may start a new topic in school and have a quick setback. This student is

more prone to think that this early setback is due to lack of ability. In contrast, incremental theorists are not as susceptible to snap judgments. Even if they do make snap judgments about themselves and others, incremental theorists believe that these qualities are malleable, so the long-term effects of snap judgments are not as costly. Thus, generally speaking, entity theorists are more likely and quicker to endorse stereotypes, which are associated with greater out-group/in-group biases (Levy, Plaks, Hong, Chiu, & Dweck, 2001).

2. The fundamental aspects of entity theory provide a "Black and White" reality. That is, people with a fixed mindset often see the world as simple. From this perspective, people are either smart or not, good or bad, etc. - their stock in life is already given. Thus, there is a parsimonious appeal to being of a fixed mindset. On the other hand, incremental theorists see the world and the people in it as more complex – the reality is based on several factors that influence it. If students do poorly in school, it may be because they did not study, because they are malnourished, etc. From this perspective, breaking the law is not indicative of a "bad" person; the mediating elements that led to the behavior are of more interest to the incremental theorist.
3. These theories are, in essence, dichotomous. A person cannot believe traits, such as intelligence or morality, are fixed AND malleable. However, this does not suggest that a person has to be completely entity or incremental in orientation. In fact, research has found that one's orientation is domain specific (Dweck, Chiu, & Hong, 1995b). For instance, it is possible, and typical, that a person believes that a trait like intelligence is fixed for life yet another personality characteristic like morality can be altered, for good or for bad.

4. One's mindset is not necessarily inherent. Research studies have been able to manipulate the mindset of subjects, at least temporarily (Aronson, Fried, & Good, 2002; Good, Aronson, & Inzlicht, 2003; Levy et al., 2001). This point is closely related to the possibility that one person can use entity **and** incremental theories in two different domains. It is for this reason that Dweck, Chiu, and Hong (1995b) prefer to think of the relationship between the implicit theory and the common resulting goal orientation and behavior as *knowledge structures*. Looking at the relationship between these allied constructs as knowledge structures allows for the flexibility of one person using both implicit theories. For example, entity theory has stronger links to performance goals, which are typically linked with helplessness and avoidance behaviors. This does not preclude other behavior or other orientations. However, despite having the capacity to use more than just one of the implicit theories, research suggests that people tend to use one more than the other, so they typically embody the allied constructs associated with the respective knowledge structure. In other words, it is possible that entity and incremental theorists can see the influence of both ability and effort on performance, but each would weight their influence on performance differently (Hong, Chiu, Dweck, Lin, & Wan,1999). So, when failure did present itself, the subsequent behavior would vary depending on the weights they ascribed to ability and effort.
5. There are equal proportions of entity and incremental theorists. Despite people having the ability to hold both entity and incremental theories across different personality dimensions, 85% of research participants are clearly categorized, and in equal proportions, into one or the other (Chiu, Hong, & Dweck,1997; Levy, Plaks,

Hong, Chiu, & Dweck, 2001). The way most studies are conducted on the entity and incremental theories is to exclude data on the remaining 15% of participants that do not clearly fall into one of the groups. However, it should be noted that these breakdowns are based on research mostly conducted in Western cultures. Compared to the roughly equal division of entity and incremental theorists in Western cultures, research indicates that the dispositions of people from more traditionally Eastern cultures are up to three times as likely to be entity theorists as incremental theorists (Dweck, et al., 1995a; Chiu & Hong, 1999; Li, Harrison, & Solmon, 2004; Su, Chiu, Hong, Leung, Peng, & Morris, 1999).

6. Much of the research on implicit theories seems to lean toward incremental theory as the favorable one, due mostly to the adaptive elements often associated with it. However, little research has been done outside of the academic arena on entity versus incremental theories. One area that has demonstrated interesting and somewhat contradictory results is in the area of business. Werth, Markel, and Forster (2006) conducted a study that suggests entity theorists may benefit more than incremental theorists in a corporate setting. They found that managers who were entity theorists were rated significantly more positively than incremental theorist managers. These findings would seemingly suggest that there are different needs and dynamics to the business world compared to the academic world. The reasons behind this difference may be due to the fundamental differences behind the two theories (i.e., employees would rather have a manager who sees things as Black and White instead of giving every one a second and third chance after failures; an entire department may be affected when a single employee does not perform well, so evaluating employees'

performance is more important than evaluating their potential; ostensible performance is clear and may be how equity is weighed, so performance is king in the business world; etc.). This study illustrates the importance of understanding and taking into account the context in which the study takes place.

At-risk Students and Mindset

It is clear that from an academic perspective, being an incremental theorist and having a growth mindset is advantageous. It is strongly associated with adaptive learning patterns, motivation to take on and persevere in the face of new challenges, and to be resilient to setbacks and failures, all of which generally translate into success in the classroom. Intuitively, it would seem that an argument could be made that strong students would have a growth mindset due to the adaptive learning patterns that are associated with it. Persistence, mastery-orientation, increased motivation, etc. all would suggest strong academic performance. Because these students are accepted into college, it seems reasonable that they have adaptive learning patterns. This same stance may be supported by Li, Harrison, and Solmon (2004), who stated that in educational contexts, African Americans are more likely to be incremental theorists while European Americans are more likely to be entity theorists, but it should be noted that these authors were not addressing specifically at-risk students. I believe that this is a critical element, which is why I argue that one of the reasons why at-risk students do not fare as well in higher education is because they are more likely to be entity theorists, which engenders maladaptive learning patterns. It does seem easy to make the argument that because at-risk students are successful enough to get into college, they must have adaptive learning patterns, and thus a growth mindset. However, the counter-argument can be just as easily

made. Research has shown that at-risk students perform poorly in higher education, which could suggest maladaptive learning patterns are present that impinge upon their success, implying that at-risk students have a fixed mindset. While I have not been able to find direct empirical support for this statement, the argument can be made.

While mindset can influence ability, research has demonstrated that ability is not necessarily predictive of mindset. According to Dweck (1986), it may seem intuitive that the smartest students and the highest achievers are more confident in future challenges because they have demonstrated success in the past. However, this is not the case. As mentioned before, regardless of level of confidence in ability, students with learning goal orientation are more likely to take on new challenges and persevere through drawbacks, while only students with a performance mindset who are highly confident in their ability do so, provided that the confidence is maintained. This suggests that even the most able students do not succeed when the situation would suggest they should. This has been most clearly demonstrated in research that has studied gender differences in math and science courses. Compared to boys, girls, especially the brightest girls, have greater tendencies to have low self-expectations (Stipek & Hoffman, 1980), ability attributions for failure (Nicholls, 1979), and debilitation under failure (Licht & Dweck, 1984) when it comes to science and math classes. Dweck (1986) suggested and supported that when it comes to science and math classes, girls are performance-minded while boys are growth-minded, which would help explain why there are gender differences in these classes. I argue that the same differences are present in at-risk students.

Based on the information from previous chapters, it was suggested that at-risk students have limited social networks and weaker academic identities. I argued that if

this is the case, then at-risk students are admitted to college because they are bright students and not necessarily because they have learned the fundamentals that create a foundation for success. If this is the case, then the learning curve for at-risk students is greater in college, which suggests that the opportunity for setbacks and failures increase and the tendency to persevere needs to be stronger. However, because at-risk students tend to, proportionally, do worse in and drop out of higher education, I proposed that at-risk students do not have these traits, traits that are associated with incremental theorists. Because of the dichotomous relationship between the two theories, I argued that at-risk students are more likely to be entity theorists.

If the argument stated above that the learning curve for at-risk students is steeper is sound, then that would suggest that high school was easy and that it is unlikely that there was a need to work to "learn." Rather, the focus for these students was, or at least became, to perform – to simply getting the grade. This stance would promote a performance mindset. This could be further exemplified if they were praised for their achievement, when there was little work involved.

Mueller and Dweck (1998) conducted six studies on fifth graders and found that praising their intelligence, as though it was fixed, instead of the effort used toward completing a task led to the children developing a performance goal orientation. This orientation led to the children seeking performance-oriented feedback, which led to children not seeking useful problem-solving strategies for when difficulties arose in the future. Similar results were found in two studies by Kamins and Dweck (1999), where 131 five and six year olds were observed in situations that manipulated the type of and the direction of feedback given to the children. Kamins and Dweck found that when the

children were praised or criticized based on their traits as opposed to their efforts, their sense of self was vulnerable. That is, participants displayed more helplessness when entity aspects were praised or criticized instead of the actual effort on a task, creating a self-worth contingent on the fixed aspects of their personality, things they cannot change. These studies suggest that when feedback, whether it is praise or criticism, is given for work that did not take much effort, such as easy high school homework assignments, then maladaptive learning patterns associated with a fixed mindset result as opposed to sustaining, persevering characteristics associated with a growth mindset.

If at-risk students in college are smart and have a performance mindset, this would leave them more susceptible to the deleterious effect of maladaptive learning patterns. They would have more to lose and thus be less motivated to improve upon their base. Dweck (1986) stated that two criteria typically have to be present before the maladaptive learning patterns affect learning and behavior. The article suggests that in order to detect this, even among high achievers, students have to either have (a) the presence of failure and/or (b) an opportunity to avoid a challenging subject. For most people, neither condition is typically present until middle or high school. For bright students, these conditions may not present themselves until college. It is when these conditions are present that maladaptive learning patterns manifest, such as withdrawal behavior in performance goals and lack of perseverance in learning. Thus, such patterns would explain the low freshman-to-sophomore-year retention rates of at-risk students and the low graduation rate overall.

Furthermore, if at-risk students are fixed-minded, it is more likely that a self-fulfilling prophecy could be created in academia. According to Dweck, Chiu, and Hong

(1995a), entity theorists are more likely to make snap judgments about their ability. If they encounter early trouble in college, they will be quick to believe that college is undermining their ability, which can lead to early withdrawal behaviors. I believed that these arguments supported the following hypothesis:

Hypothesis 7: At-risk students would be more likely to have an entity mindset than their advantaged counterparts.

Chapter V

Long-Term Effects

The focus of this study was to create a profile for at-risk students that would aid in understanding their lack of success in higher education compared to their advantaged counterparts. While creating and testing the profile was the main task of this research, the ultimate result was to understand its effect on academic performance. Thus, this study included a long-term element to test the influence of the students' academic social network, academic identity, and mindset on performance factors related to success in higher education. If the above hypotheses were correct, then main effects of each should be manifested in academic performance in college.

Hypothesis 8: Academic social network, academic identity, and mindset would predict that at-risk students would not perform as well academically as advantaged students.

While the research outlined in the previous chapters supported the basis for Hypothesis 8, an argument for an interaction among social network, academic identity, and mindset seemed likely as well.

Interaction Effects

If the assumptions from the previous chapters were correct (i.e., at-risk students had a limited academic social network and an inaccurate academic identity), at-risk students were likely to encounter difficulties in college. If these students had a fixed mindset, they would not react well to the difficulties that are encountered with poor performance in college. I believed if this scenario occurred, interaction effects with both their academic social network and their academic identity would result, making at-risk

students more likely to exhibit withdrawal behavior as opposed to persevering, which would be consistent with the disproportionate drop out rate of at-risk students.

A link between the possible interaction between mindset and social network comes from research in an employment setting. Werth, Markel, and Forster (2006) found that, in an employment setting, employees would rate their employers differently based on their theoretical position. Growth-minded employees would consider situational demands more when rating their supervisor, while fixed-minded employees would focus more strongly on their relationship with their employer. This suggests that employees in a fixed mindset would rate employers based on how well they knew them. In an academic setting, at-risk students are less likely to know their instructors, so if they have a fixed mindset they are less likely to view them favorably. Although I could not find research that would suggest how entity theorists view their relationships with peers, it seems reasonable to assume that the same approach toward employers would be used toward peers. That is, growth-minded students would be more prone to judge their peers based on situational demands and less prone to snap judgments. This would suggest that growth-minded students would be more likely to expand their social network. On the other hand, fixed-minded students would judge their peers based on how well they knew them, and they would be more prone to making snap judgments about their character. Thus, performance-minded students will be less likely to expand their social network. Because at-risk students are less likely to have friends attend college with them, most of their peers will be strangers. Thus, they will be less likely to judge their peers favorably. If they are entity theorists, these unfavorable snap judgments may be persevering. So, not only will their social networks already be limited, at-risk students will be less likely

to expand it with academically knowledgeable people. At-risk students with a fixed mindset and a weak academic social network are less likely to expand their academic social network and consequently more likely to perform poorly in higher education than at-risk students with a growth mindset.

Hypothesis 9: At-risk students with a weak academic social network and a fixed mindset would be less likely to expand their social networks compared to their advantaged counterparts.

With regard to academic identity, recall that according to ICT, identity is comprised of four components: (a) an identity standard, which is the set of meanings, often culturally prescribed, that are held by the individual who defines her role in a situation; (b) the perceived self-relevant meanings of the situation; (c) the comparator or mechanism that compares perceived situational meanings with those held in the identity standard; and (d) the individual's behavior or activity, which is a function of the difference between one's perceptions and the identity standard. According to this model, when faced with a discrepancy between one's perceptions and the identity standard, behavior will be motivated to bring them into agreement by changing either the perceived self-relevant meanings or the situation. I propose that the behavior to change either the situation or the perceived self-relevant meanings will be affected by mindset. Entity theorists, who believe that personality characteristics are fixed, should be more inclined to change the situation as opposed to reevaluating their perceptions. For example, if they feel their perceived academic identity does not match up to the academic identity standard, their behavior is not likely to be motivated to change their perception, since they are inclined to feel that their own academic identity characteristic is fixed. So, they

will be motivated more in the direction to change the situation. In contrast, incremental theorists, who see such characteristics as malleable, will not see their own academic identity as static. Therefore, incremental theorists would be less motivated to change the situation and more motivated to change their own perception.

Hypothesis 10: The behavior of at-risk students would be affected by mindset such that at-risk students with a fixed mindset and a less salient academic identity would be motivated to change the situation of their academic environment.

Chapter VI

Method

Participants

The main goal of this research was to test whether the proposed framework distinguished differences between at-risk students and other students. I proposed that at-risk students, which include those who have one or more of the characteristics of living in poverty, having low levels of family support, coming from poorly funded primary education systems, coming from underrepresented ethnicities and cultures, or being first-generation college students, will be found to have weak academic social networks, an academic identity with low salience, and a fixed mindset. In order to test these propositions, I used three different student populations to create two groups: at-risk students and their advantaged counterparts.

The at-risk students were determined by their membership in one of two student populations. The first student population was the Goodrich Scholarship Program (GSP). GSP is a state-funded program that pays for tuition and fees for its scholars for up to 140 credit hours or graduation, whichever comes first. In order to qualify for the scholarship, students must meet the financial need qualifications, they must be Nebraska residents, and they must have fewer than 32 college credits. Applicants who meet these qualifications are considered for the selection process, which is based on merit and considerations of diversity. The mission behind GSP is to provide the opportunity of a college education to underprivileged students while encouraging diversity in both course content and faculty and student body composition. Due to the financial need requirements and the focus on diversity, the GSP scholars should have qualified as a

group as at-risk students. However, a second group was solicited that also met the qualifications of an at-risk group.

The second student population that made up at-risk students came from the Project Achieve program. Part of the mission of Project Achieve is to provide support services for first generation students, students with limited income, and students with disabilities. In fact, to qualify for membership, students need to meet at least two of the three conditions. This mission and the conditions for membership almost directly overlap with the many of the indicators of at-risk students used in this study; thus, these students seemed an ideal group for distinguishing purposes.

The last intact group used in this study was intended to serve as the proxy for advantaged students and consisted of the students enrolled in Psychology 101 classes. While there was sure to be overlap among the three groups, students in this population were less likely to be considered at-risk. However, to be sure, any potential for overlap was controlled through the collection of demographic data.

It was possible that, within each of the above groups, there would be individuals who would have characteristics that did not conform to the characteristics for which they were grouped. For example, it was possible that there were at-risks students in the Psychology 101 group. In order to address the vulnerability to misclassification, the participants were regrouped statistically, based on their ethnicity, their parents' income, and their parents' level of education. Thus, there were two sets of analyses, one set based on the in-tact at-risk vs. the advantaged groups and one set based on the statistically predicted at-risk vs. advantaged groups.

Procedure

In order to test the hypotheses in this study, it was important to measure participants early in their college career, before students had been exposed to the college experience fully. Thus, participants were given a questionnaire that measured the constructs that tested the hypotheses during the first few weeks of their first semester in college. Participants from the Goodrich Scholarship Program were given the questionnaire during one of their Academic Resource Seminars (ARS). The ARS, which were fifty minutes long and held once a week for seven weeks, were required by GSP scholars as one of the conditions for their acceptance of the scholarship. The ARS were designed for first-year GSP scholars to explore relevant issues and learn the skills necessary to be successful college students, such as time- and money-management. One session was dedicated to exposing students to academic research and data collection. It was in this session that the scholars were given the questionnaire for this study. While all scholars were required to participate in the ARS and complete the questionnaire, only the data from participants who voluntarily signed informed consent forms were included in the analyses.

Students in Project Achieve had regular group meetings a few times during the first few weeks of the semester to get acquainted with program staff, so the questionnaires were administered to participants from this population during one of their group meetings. Again, only data from participants who voluntarily signed informed consent forms were included in the analyses.

The advantaged counterparts to at-risk students, Psychology 101 students, were solicited using SONA, the on-line system used by the university's Psychology

department for research. Students who signed up to participate in this study were given one extra credit points for every half hour they took to complete the questionnaire.

Measures

Demographic Variables. The demographic data that were collected for this study included sex, age, ethnicity, socioeconomic status information, secondary school preparation, and current college status (Appendix A). It was likely that the age data from the participants in this study were restricted due to the target group, college freshmen. However, it was possible that there were non-traditional students in the participant pool, particularly in the at-risk groups. Thus, age was included in the questionnaire.

The SES information was an important element in this study because it was hypothesized to be one of the ascribed categories that would have higher salience than the academic category. SES was determined by two questions that were adapted from separate sources. The first question asked participants about their parents' highest level of education, an adaption from a question used by White and Burke (1987). In its original form, the question only asked about the father's education. However, due to the population being studied in the current research project, it was possible that some of the participants would come from single-parent households, which could be the mother, so the question was modified. The second question for SES was adapted from Spencer and Castano (2007), which asked participants to identify the total combined gross income of their parents.

The last demographic questions were intended to address participants' readiness for college based on their secondary school preparation. Three questions regarding preparation for college were created for this study. The secondary school preparation

questions asked participants to indicate their high school GPA, their cumulative ACT, and whether or not they took any honors or college preparatory courses while in high school.

Social networks. The measures for social networks were intended to test Hypothesis 1: At-risk students would have smaller academic social networks than their advantaged peers (Appendix B). The social networks information was collected from seven questions, three of which were open-ended. These questions measured the influence of an academic element in the social networks of the participants. The first four questions were created specifically for this study. The final three questions were adapted from Lee's (1998) "social encouragement" variable, which was originally developed to assess the effects of social support for science, math, and engineering interests. In their original form, these questions measured the level of encouragement from participants' social network to pursue SME careers (How much have (1) the members of your family, (2) your friends, and (3) your teachers encouraged you to pursue a career in science, mathematics, or engineering?). Thus, the measures were generalized to assess the encouragement to pursue a college education. The answers were evaluated on a 7-point Likert-like scale (1 = "Not at All" and 7 = "Very Much").

Comparative fit. The measures for comparative fit were intended to assess Hypothesis 2: There would be group differences in how participants would distinguish categorical differences between "academic" and ethnicity, SES, and gender (Appendix C). Seven questions were adapted from a semantic differential scale used by Lee (1998). In the scale, participants were given a prompt and chose a rating from a range between a word and its opposite that were placed on either end of a continuum. The prompts for

comparative fit covered four areas: (a) perceptions of college students, (b) perceptions of people in their ethnic group, (c) perceptions of people in their SES group, and (d) perceptions of people of the same gender. The semantic differential scales used for these prompts were as follows: evaluation, potency, activity, emotionality, cooperativeness, logical, and friendly. Responses were analyzed based on the discrepancy of the different perceptions on these scales, which created the ratio for comparative fit.

Two more perceptions were collected in an exploratory fashion and included in the comparative fit questions. The additional perceptions were (a) the perceptions of friends and (b) the perceptions of family members. By including these perceptions in the semantic differential scale, they could be compared against the participants' perceptions of college students to identify the degree to which people in their social network represent academic characteristics.

Depersonalization. Only one measure was used to test Hypothesis 3: Depersonalization would be more likely to occur for membership in the ascribed categorical groups of ethnicity, SES, and gender compared to membership in an academic category. However, this was consistent with quantifying depersonalization (Appendix C). That is, calculating the difference between self-perceptions and perceptions of the academic category and dividing it by the difference between self-perceptions and the perceptions of the ascribed categories of ethnicity, SES, and gender created a value for depersonalization (Turner, 1987)

Accessibility. Hypothesis 4 stated that the accessibility to membership in ethnicity and SES would mediate membership in the academic category, such that when membership in the former categories were made salient, depersonalization for

membership in the latter would decrease for at-risk students. The timing of the demographic survey was manipulated to test this hypothesis. Following the procedure used by Spencer and Castano (2007) to highlight the salience of income to participants taking tests of verbal intelligence and verbal perception, half of the participants in each of the three groups were given the demographic questions first and the other half were given the demographic questions last. The reason for the manipulation was that the demographic data highlights traits included in the ascribed categories (i.e., ethnicity, SES, and gender). Thus, if these questions were given first, they would trigger these proposed stronger categorical memberships, decreasing the accessibility of the academic category.

Identity salience. Three measures were used to test Hypothesis 5: Salience of academic identity for at-risk students would be lower than salience of the identity categories ethnicity, SES, and gender. These measures, which are in Appendix D, were adapted from White and Burke (1987). Each question used a 7-point Likert-like scale (1 = "Not at all important" and 7 = "Very important") to measure the following questions: (a) "How important is it to you to have your close friends think of you in terms of your…," (b) "How important is it to you to have your parents think of you in terms of your…," and (c) "How important is it to you to have people in general think of you in terms of your…"

Commitment. Two questions were used to test Hypothesis 6: The commitment to academic identity of at-risk students would not be as high as the commitment to ethnicity, SES, and gender (Appendix E). Recall that according to ICT, commitment takes two forms, interactional and affective. Thus, commitment was measured for both types of commitment based on questions adapted from Stryker and Statham (1985). The first

question, which measured interactional commitment, started with the following prompt: "Think about all the people you know. How many of these people do you know as a result of your..." Then, participants were prompted for the four identities listed in Hypothesis 6, using a scale of one to seven (1 = "None" and 7 = "A Lot"). The second question, which measured affective commitment, followed the same pattern, but the prompt was as follows: "How important is it to you that the people that are the closest to you share with you the following characteristics?" Using this prompt, the same four identities were measured on a 7-point Likert-like scale, 1 = "Not at all important" and 7 = "Very Important" for this questions.

Mindset. The measures for mindset were intended to test Hypothesis 7: At-risk students would be more likely to have an entity mindset than their advantaged counterparts (Appendix F). A total of 12 questions were used, taken from Grant and Dweck (2003). Six of the questions measured performance mindset and the remaining six measured growth mindset. Consistent with prior research on mindset, a 7-point scale was used (1 = "Strongly Disagree" and 7 = "Strongly Agree").

Main effects on performance. In order to test Hypothesis 8, the predictive power of academic social network, academic identity, and mindset on academic performance for at-risk students and their counterparts, two measures were used. The main measure for academic performance was from participants' GPA at the end of the first semester. Because of the consistent and strong correlations among student satisfaction, GPA, and retention (Astin, 1993), a modified version of the Satisfaction with College scale (Astin, 1993) was administered to students (Appendix G) as a second measure.

Interaction of social network and mindset. To test Hypothesis 9: At-risk students with a weak academic social network and a fixed mindset would be less likely to expand their social networks compared to their advantaged counterparts, two questions were developed (Appendix H). First, the following prompt was given, "To what degree would you agree with the following statements?" This prompt was then followed by these two statements: "I made several new friends in my first semester at college" and "I spend time with friends I met at college outside of the classroom environment." These two items were rated on a 7-point Likert-like scale (1 = "Strongly Disagree" and 7 = "Strongly Agree").

Interaction between mindset and identity. Hypothesis 10 stated that the behavior of at-risk students would mediate mindset such that at-risk students with a fixed mindset and a less salient academic identity would be motivated to change the situation versus changing the perceived self-relevant meaning of their academic identity. This was tested by measuring withdrawal behavioral. Similar to the measures for Hypothesis 8, the measures to test Hypothesis 10 were collected at the end of the semester and included the following: credit hours attempted, credit hours completed, and number of registered hours for the following semester.

Chapter VII

Results

A total of 87 questionnaires were used in the analyses, 45 represented the Goodrich participants and 42 represented the Psychology 101 participants. Project Achieve participants did not return any questionnaires. As indicated in Chapter VI, Project Achieve students were solicited during two of their group meetings. Approximately 30 questionnaires were handed out during the meetings, but the participants were not able to finish the questionnaires in the time allotted because the material covered in the meetings ran long. None of the participants volunteered to stay later to complete all the questions, nor did they submit what they had started. Whereas the Goodrich participants completed the questionnaires as a part of their curriculum, voluntarily submitting permission forms for their data to be included in the research, and Psychology 101 participants received extra credit for their participation, there was no equitable compensation for the Project Achieve students. However, it is possible that there were other factors that led to the lack of participation from the Project Achieve students that I was unable to identify.

Demographic Data

Data were collected on sex, age, ethnicity, SES (parents' education and total household income), and secondary school preparation (self-reported high school GPA, self-reported ACT, and self-reported number of college preparatory classes taken while in high school). Based on the data of all 87 questionnaires, 32 were male (Goodrich = 19, Psychology 101 = 13) and 55 were female (Goodrich = 26, Psychology 101 = 29). The average age of the participants was 19.77 (Goodrich = 19.80, Psychology 101 = 19.76).

Forty-five of the participants were White (Goodrich = 17, Psychology 101 = 28), 16 were Latino (Goodrich =10, Psychology 101 = 6), 12 were Black (Goodrich = 10, Psychology 101 = 2), 3 were Asian (Goodrich = 1, Psychology 101 = 2), and 11 were "Other" (Goodrich = 7, Psychology 101 = 4). These data suggest Goodrich participants were more ethnically diverse than Psychology 101, with 62% of the Goodrich participants comprised of ethnic minorities, versus 34% of Psychology 101 participants.

Table 2 displays the data for the SES variables in the questionnaire. There was a significant group difference for both Parents' Education (Goodrich $M = 4.26$, $SD = 1.80$; Psychology 101 $M = 5.12$, $SD = 1.57$; $t(83) = 2.36$, $p = .02$) and for Parents' Income (Goodrich $M = 3.38$, $SD = 1.59$; Psychology 101 $M = 4.60$, $SD = 2.04$; $t(82) = 3.04$, $p = .00$). Because SES is one of the key elements used to categorize students as at-risk, these data suggested that there was a categorical difference between these two groups, which supported the rationale for using these two groups for comparison. While there was theoretical support for combining these, the reliability for the two combined to create a scale was a bit low (Cronbach's alpha = .49).

The remaining demographic variables in this research were the secondary school preparatory items. Similar to the SES variables, there were group distinctions among the secondary school preparatory variables as well. The self-reported high school GPA for all participants was 3.64, but interestingly the Goodrich GPA ($M = 3.79$, $SD = 0.42$) was higher than the Psychology 101 GPA ($M = 3.54$, $SD = 0.50$), $t(77) = 1.92$, $p = .06$. While the self-reported ACT score was collected in the questionnaire, the actual ACT score was collected as well. The self-reported ACT score (total = 23.36, Goodrich = 22.85, Psychology 101 = 23.97) was very similar to the actual ACT score (total = 22.89,

Goodrich = 22.40, Psychology 101 = 23.49). In terms of honors courses, 64 of the 87 participants had taken at least one honors course (Goodrich = 37 out of 45, 82%; Psychology 101 = 27 out of 42, 64%), but Psychology 101 participants were more likely to take more than one (Goodrich $M = 1.18$, $SD = 0.39$; Psychology 101 $M = 1.36$, $SD = 0.46$; $t(85) = 1.91$, $p = .06$). With regard to the secondary school preparatory variables, Goodrich participants had higher high school GPAs but did not appear to be more prepared for college.

Academic Social Network

Hypothesis 1 (see Appendix I for a list of all hypotheses) stated that at-risk students would have smaller academic social networks than their advantaged peers. To test this hypothesis, participant's academic social network had to be identified. The first step in identifying the participants' academic social network was to ask them question 10 in Appendix B ("In general, who are the people you go to for advice/support?"). This question essentially identified the participants' overall social network. The participants were instructed to answer this question by labeling their answers by relationship (e.g., brother, mother, friend, etc.). The answers were quantified by giving each unique answer a value of "1;" plural answers were given a value of "2." For example, the answer "parent" was valued as 1, while the answer "parents" was 2. All values were summed to create a total. While this total gave an approximation of the overall size of the social network, the academic social network was determined by questions 11 and 12.

The open-ended question 11 in Appendix B ("Which of the people in the previous question attended college?") assessed how many of the people in the previous question had college experience. The answers to this question were quantified in the same fashion

Table 2

Frequency and Mean of SES Variables: Parents' Income and Parents' Education

SES Variables				
Parents' Education		Goodrich	Psych 101	Total
1	Below 9th Grade	5	1	6
2	9th through 12th Grade	1	0	1
3	High School Diploma	10	6	16
4	Some College	7	10	17
5	Associate's Degree	5	4	9
6	Bachelor's Degree	12	11	23
7	Graduate/Professional School	3	10	13
	(Blank)	2	0	2
	M	4.26	5.12	4.68
	Parents' Income	Goodrich	Psych 101	Total
1	Less than $20,000	4	3	7
2	$20,000 - $34,999	9	7	16
3	$35,000 - $49,999	12	3	15
4	$50,000 - $64,999	9	5	14
5	$65,000 - $79,999	2	8	10
6	$80,000 - $94,999	4	5	9
7	$95,000 or more	2	11	13
	(Blank)	3	0	3
	M	3.38	4.60	3.99

Note. The median household income for the US households between 2004 and 2006 was $47,790 (Digest of Education Statistics, 2007b).

as the social network question. The value of this newly created variable was averaged with the quantified value for question 12 in Appendix B ("Who, if anyone, do you know that is VERY close to you who has attended college?") to create the "Academic Social Network" measure. While question 11 assessed the number of people in whom participants confided and the number who attended college, question 12 assessed the general exposure to college that each participant had, so questions 11 and 12 in combination were expected to give a truer idea of participants' academic social network. Cronbach's Alpha was used to assess the Academic Social Network measure reliability ($\alpha = .81$).

An independent-samples *t*-test was used to identify group differences between Goodrich and Psychology 101 participants for the Academic Social Network measure. There are two testable assumptions of the independent-samples *t*-test. The first assumption is that the mean of the sample has a normal distribution. This is tested by generating the P-P probability plots of the sample. The probability plots for the samples in this research suggested a normal distribution. The second assumption of *t*-tests is that there is equality of variance among the groups. This assumption is tested by Levene's Test. For the independent *t*-test for Hypothesis 1, Levene's Test was not significant, implying that there was equality of variance between the two groups.

The *t*-test of the mean difference for academic social network for the Goodrich sample ($M = 2.60$, $SD = 1.48$) and the Psychology 101 sample ($M = 3.01$, $SD = 1.62$) was not significant ($t(85) = 1.24$, *ns*). This suggested that although the results of this analysis demonstrated a relationship in the direction hypothesized, the size of the groups'

academic social network was not statistically different and Hypothesis 1 was not supported.

Academic Identity

Chapter II suggested that there would be differences between at-risk students and their advantaged counterparts in terms of their academic identity. Two theories were outlined to provide support for the purported group difference, Self-Categorization Theory (SCT) (Tajfel & Turner, 1986) and Identity Control Theory (ICT) (Turner, 1987). Hypotheses 2, 3, and 4 used SCT logic to test group differences on academic identity, and Hypotheses 5 and 6 used ICT. SCT. Hypothesis 2 stated that there would be distinguishing demographic differences between ascribed categories (i.e., ethnicity, SES, and gender) and an "academic" category such that members of the at-risk group would not see "academic" as a characteristic of their ascribed category. Furthermore, because at-risk students are more likely to have one or more minority category memberships, group differences were predicted between at-risk and advantaged participants between ascribed categories and the academic category.

Hypothesis 2 was tested using questions 16, 17, 18, and 19 from Appendix C. To answer these questions, participants used the semantic differential scale in Appendix C. The answers were analyzed based on the discrepancy of the different perceptions with regard to these scales, which created the ratio for comparative fit. The procedure that I used to create discrepancy scores was adapted from Lee (1998), which was to calculate the Euclidean distance between "college student," which represented the academic category, and the other three categories (ethnicity, SES, and gender) on each of the semantic differential scales. For instance, to create the discrepancy variable between

college student and ethnicity, the following calculation was performed: [(college student evaluation rating – perceived ethnicity evaluation rating)^2 + (college student potency rating – perceived ethnicity potency rating)^2 + …+ (college student intelligent rating – perceived ethnicity intelligent rating)^2]$^{1/2}$.

According to Hypothesis 2, minorities of the ascribed categories would make a statistically significant distinction between the academic identity and the ascribed identities such that the ascribed categories would be stronger. Thus, this hypothesis essentially consisted of three dependent variables: the comparative fit between academic and ethnicity, academic and SES, and academic and sex. The hypothesis stated that the value of the dependent variables would be significantly different for participants who belonged to the traditionally underprivileged group (i.e., ethnic minorities, those who were low SES, and females) compared to those who belonged to the privileged group. That is, for example, non-White participants would see a larger distinction between their conception of other non-White people and their conception of a "college student" regarding the semantic characteristics compared to White participants. Furthermore, because many at-risk students belong to one or more of the minority sections of the ascribed groups, it stood to reason that that there would be a group difference of at-risk and advantaged participants in the comparative fit scales, as well. Thus, if Hypothesis 2 was correct, there should be a difference between Whites/non-Whites, high SES/low SES, males/females, and Goodrich/Psychology 101 participants in how well their perceptions of a "college student" (academic) fits their perceptions of people of their same ethnicity, SES, and sex. Means and standard deviations are in Table 3.

To test Hypothesis 2, I conducted four multivariate *t*-tests (Table 4). The multivariate *t*-test (Hotelling's T^2) is similar to the univariate *t*-test, except instead of comparing the mean difference between two groups by means of one measure or scale, the multivariate *t*-test compares group differences using more than one measure or scale at the same time (Stevens, 2002). More specifically, Hotelling's T^2 tests whether there is a group difference when all three comparative measures are compared simultaneously. As the table illustrates, there were no significant multivariate results. A post hoc review of the univariate results was done using the Bonferroni inequality as outlined by Stevens (2002). Although this method decreased the power to detect differences, it is the recommended method, especially when the number of dependent variables is small (Timm, 1975). The Bonferroni inequality states that the alpha used to test the univariate results should be derived from the alpha used for the multivariate analyses divided by the number of dependent variables. Thus, post hoc results used $p = .05/3 = .017$. At this alpha, the univariate results were not significant. Thus, Hypothesis 2 was not supported.

Another important element of SCT is the concept of depersonalization, the level of self-stereotyping using the characteristics of a group. As outlined in Chapter III, the more depersonalization, the more one identifies with that group. This reasoning led to Hypothesis 3, depersonalization is more likely to occur for membership in the ascribed categorical groups of ethnicity, SES, and gender compared to membership in an academic category. This suggests that everyone should have stronger (lower) depersonalization ratings for their ascribed categories than for the "academic" category (i.e., Whites/Latinos/Blacks/etc. should self-identify more with ethnicity than with being academic; women/men should self-identify more with gender than with being an

Table 3

Means and Standard Deviations for Category Membership and Comparative Fit Measures

	White		Non-White	
Comparative Fit	*M*	*SD*	*M*	*SD*
Academic/Ethnicity	3.80	1.49	4.62	2.36
Academic/SES	3.66	1.59	3.70	1.81
Academic/Sex	4.05	1.42	4.49	2.15
	Higher SES		Lower SES	
	M	*SD*	*M*	*SD*
Academic/Ethnicity	3.77	1.56	4.58	2.18
Academic/SES	3.74	1.62	3.89	1.76
Academic/Sex	4.15	1.43	4.45	2.19
	Male		Female	
	M	*SD*	*M*	*SD*
Academic/Ethnicity	3.97	1.91	4.23	1.93
Academic/SES	3.76	1.75	3.82	1.66
Academic/Sex	4.35	1.31	4.30	2.07
	Goodrich		Psych 101	
	M	*SD*	*M*	*SD*
Academic/Ethnicity	4.34	2.21	3.85	1.49
Academic/SES	3.60	1.81	4.03	1.52
Academic/Sex	4.41	2.05	4.16	1.55

Table 4

Multivariate and Univariate t-tests of Category Membership on Comparative Fit Measures

		ANOVA		
	MANOVA	Academic/Ethnicity	Academic/SES	Academic/Sex
Category	*F*(3,72)	*F*(1,76)	*F*(1,76)	*F*(1,76)
Ethnicity	1.40	3.4	.01	1.18

		ANOVA		
	MANOVA	Academic/Ethnicity	Academic/SES	Academic/Sex
Category	*F*(3,83)	*F*(1,87)	*F*(1,87)	*F*(1,87)
SES	1.46	4.05	.17	.56

		ANOVA		
	MANOVA	Academic/Ethnicity	Academic/SES	Academic/Sex
Category	*F*(3,82)	*F*(1,86)	*F*(1,86)	*F*(1,86)
Sex	.20	.37	.02	.91

		ANOVA		
	MANOVA	Academic/Ethnicity	Academic/SES	Academic/Sex
Category	*F*(3,83)	*F*(1,87)	*F*(1,87)	*F*(1,87)
Group	2.47	2.08	1.49	.39

Note. *F* ratios are Wilks's approximation of *F*s.

MANOVA = multivariate analysis of variance.

ANOVA = univariate analysis of variance.

Group = Goodrich or Psychology 101.

academic, etc.). However, I proposed there would be a difference in self-identification among at-risk students because their ascribed "profile" would not fit that of the academic category as well as the "profile" of advantaged students. Thus, there should be a group difference between Goodrich and Psychology 101 participants regarding the depersonalization of the academic category and the ascribed categories.

Hypothesis 3 was tested using the method described by Turner (1987). The same semantic differential calculations used to test Hypothesis 2 were used, but the difference was calculated between all four categories (perceptions of college students, and others with same ethnicity, SES, and gender) and the participants' self-perception (question 22, Appendix C). The calculations followed this pattern: [(self evaluation rating – perceived college student evaluation rating)^2 + (self potency rating – perceived college student potency rating)^2 + …+ (self intelligent rating – perceived college student intelligent rating)^2]$^{1/2}$.

In order to identify potential differences based on the demographic characteristics and group membership in terms of their depersonalization value against "college student," ethnicity, SES, and gender, multivariate *t*-tests were used to test Hypothesis 3, similar to the methods used for Hypothesis 2. The results for the tests of Hypothesis 3 were not significant (Table 5 and Table 6).

The last element of SCT that was addressed in Chapter III was that of accessibility. Hypothesis 4 stated that accessibility to membership in ethnicity, SES, and gender would mediate membership in the academic category such that when membership in the former categories was made salient, depersonalization for membership in the latter would decrease. To test this hypothesis, the timing of the demographic questions was

manipulated. The reasoning for the manipulation was that answering demographic data highlights traits of the ascribed categories (i.e., ethnicity, SES, and gender). Thus, if these questions were given first, they should have triggered these proposed stronger categorical memberships, decreasing the accessibility of the academic category.

A 2 x 2 factorial model (group x accessibility) was used for each of the four self-discrepancy measures to test the effects of accessibility. The group factors for this model were Goodrich versus Psychology 101 participants. Accessibility, high or low, was manipulated by the order in which the demographic questions were placed in the questionnaire. High accessibility meant that the demographic data was placed at the beginning of the questionnaire, so participants answered these questions before the other measures. Low accessibility meant that demographic questions were the last questions on the questionnaire, which would make group membership neither salient nor accessible while answering the other questions. Self-discrepancy variables, the same used to test depersonalization, were the dependent variables. This method was designed to test whether or not the accessibility of membership in ascribed categories would have an effect on depersonalization for the academic category.

Table 7 displays the correlations among the dependent variables for Hypothesis 4. Table 8 displays the means and standard deviations for both the dependent and the independent variables, and Table 9 displays the results of the 2 x 2 analyses. Of all the models that tested the effects of accessibility, there were no significant effects on their depersonalization with any of the categories. Thus, Hypothesis 4 was not supported.

ICT. ICT explained the influence of identity based on the level of salience and commitment one ascribed to an identity. Hypotheses 5 and 6 were used to distinguish the

Table 5

Means and Standard Deviations for Category Membership and Depersonalization Measures

	White		Non-White	
Depersonalization	*M*	*SD*	*M*	*SD*
Self/Academic	3.80	1.25	4.11	1.98
Self/Ethnicity	3.80	1.49	4.37	1.94
Self/SES	3.66	1.59	3.70	1.59
Self/Sex	4.05	1.42	4.09	1.50
	Higher SES		Lower SES	
	M	*SD*	*M*	*SD*
Self/Academic	3.67	1.33	4.27	1.78
Self/Ethnicity	3.77	1.56	4.39	1.83
Self/SES	3.74	1.62	3.89	1.74
Self/Sex	4.15	1.43	4.14	1.75
	Male		Female	
	M	*SD*	*M*	*SD*
Self/Academic	4.01	1.53	3.93	1.64
Self/Ethnicity	3.97	1.91	4.08	1.60
Self/SES	3.76	1.75	3.82	1.65
Self/Sex	4.35	1.31	4.06	1.71
	Goodrich		Psych 101	
	M	*SD*	*M*	*SD*
Self/Academic	4.05	1.81	3.84	1.30
Self/Ethnicity	4.26	1.90	3.85	1.49
Self/SES	3.59	1.80	4.04	1.52
Self/Sex	4.13	1.62	4.16	1.56

Table 6

Multivariate and Univariate t-tests of Category Membership on Depersonalization Measures

		ANOVA			
	MANOVA	Self/Academic	Self/Ethnicity	Self/SES	Self/Sex
Category	*F*(4,69)	*F*(1,74)	*F*(1,74)	*F*(1,74)	*F*(1,74)
Ethnicity	.68	.04	2.00	.01	.01

		ANOVA			
	MANOVA	Self/Academic	Self/Ethnicity	Self/SES	Self/Sex
Category	*F*(4,80)	*F*(1,85)	*F*(1,85)	*F*(1,85)	*F*(1,85)
SES	.97	1.60	2.87^	.18	.00

		ANOVA			
	MANOVA	Self/Academic	Self/Ethnicity	Self/SES	Self/Sex
Category	*F*(4,79)	*F*(1,84)	*F*(1,84)	*F*(1,84)	*F*(1,84)
Sex	.52	.64	.07	.02	.64

		ANOVA			
	MANOVA	Self/Academic	Self/Ethnicity	Self/SES	Self/Sex
Category	*F*(4,80)	*F*(1,85)	*F*(1,85)	*F*(1,85)	*F*(1,85)
Group	1.42	.00	1.23	1.54	.01

Note. *F* ratios are Wilks' approximation of *F*s.

MANOVA = multivariate analysis of variance.

ANOVA = univariate analysis of variance.

Group = Goodrich or Psychology 101.

^ $p = .09$

group differences based on ICT's explanation of identity. Hypothesis 5 addressed the concept of salience and stated that compared to advantaged students, the academic identity of at-risk students would have lower salience than their identity with regard to ethnicity, SES, and gender. This hypothesis was measured by three items adapted from White and Burke (1987) (Appendix D). Each item used a 7-point Likert-like scale (1 = "Not at all important" and 7 = "Very important") and had participants answer prompts as they pertained to the participants' (a) academic success, (b) ethnicity, (c) socioeconomic status, and (d) gender.

To test Hypothesis 5, a profile analysis was performed. A profile analysis is a multivariate analysis that is used to compare two or more groups by means of multiple measures at the same time (Stevens, 2002; Tabachnick & Fidell, 2007). Through the profile analysis, I could determine whether the profiles of the two groups, Goodrich and Psychology 101 participants, were parallel, coincident, and level/flat. The test for parallelism identifies potential interactions between the groups and the measures, which could determine whether the two groups had the same pattern of saliencies for the different identities. Hypothesis 5 predicted that they would not have the same pattern – it stated that Goodrich participants would have higher salience with regard to the ascribed identities and lower salience for academic identity, compared to Psychology 101 participants. The test for coincidence determines if one group scores consistently higher or lower than the other on all the measures, whether or not the groups' scores are the same. Because Hypothesis 5 stated that Goodrich participants would score higher on three of the four identities, there should be a lack of coincidence. Lastly, the test to determine whether the profiles are level or flat identifies whether or not the groups'

Table 7

Correlation Coefficients for Relations Among the Depersonalization Measures

Depersonalization Measures	*M*	*SD*	1	2	3
1. Self and College	3.95	1.58			
2. Self and Ethnicity	4.05	1.71	.57**		
3. Self and SES	3.81	1.67	.42**	.49**	
4. Self and Gender	4.15	1.58	.50**	.40**	.49**

** Significant at the 0.01 level (2-tailed).

Ethnicity = White or other.

Table 8

Mean Scores and Standard Deviations for Depersonalization Measures for Group and Accessibility

	Depersonalization							
	Self and Academic		Self and Ethnicity		Self and SES		Self and Sex	
Category	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Group								
Goodrich	4.05	1.81	4.26	1.90	3.59	1.80	4.13	1.62
Psych 101	3.84	1.30	3.85	1.49	4.03	1.52	4.16	1.56
Accessibility								
Before	3.87	1.43	4.31	1.59	4.02	1.68	4.15	1.67
After	3.82	1.42	3.79	1.80	3.60	1.65	4.14	1.50

Table 9

Multivariate and Univariate Analyses of Variance for Depersonalization Measures for Group and Accessibility

		ANOVA			
Category	MANOVA *F*(4,78)	Self & Academic *F*(1,81)	Self & Ethnicity *F*(1,81)	Self & SES *F*(1,81)	Self & Sex *F*(1,81)
Group	1.43	.00	1.65	1.34	.01
Accessibility	0.98	.03	2.48	1.30	.00
Group x Accessibility	2.20	.76	3.59	7.50	.41

Note. F ratios are Wilks' approximation of *F*s.

MANOVA = multivariate analysis of variance.

ANOVA = univariate analysis of variance.

Group = Goodrich or Psychology 101.

Accessibility = before or after the questionnaire.

means on each of the four identity measures are the same. According to Tabachnick and Fidell (2007), the test for flatness only applies if the groups' profiles are parallel. If they are not parallel, then they will not be flat because the means of at least one measure is not the same as the others. By this reasoning, Hypothesis 5 predicted a lack of parallelism and a lack of flatness.

There were several issues that needed to be addressed before conducting the profile analyses outlined above. Profile analysis requires that: measures are commensurable; sample sizes for each group are adequate; the data has multivariate normality; outliers are addressed; there is homogeneity in the variance-covariance matrices; there is linearity among the dependent variable relationships; and multicollinearity and singularity are absent (Stevens, 2002; Tabachnick & Fidell, 2007). Regarding the first issue, all the measures used in this profile analysis are scaled the same and commensurable. As with almost all statistical analyses, it is important to have an adequate sample size. The rule of thumb is to have more participants in the smallest group than there are dependent variables. The smaller of the two groups had 42 participants, and there were only four dependent variables, so sample size was not an issue. Provided that there are no issues with sample size, profile analyses are robust with regards to the remaining issues except for one – profile analysis is very sensitive to outliers.

The search for univariate and multivariate outliers in grouped data, as is the case in this study, should be done separately for each group (Tabachnick & Fidell, 2007). Only academic salience had univariate outliers. Two of the Psychology 101 participants had extremely low z scores (z-score = -3.69), which means that it was not important at all

if they were thought of in terms of their academic success. Both of these students were significantly older than most of the other participants (27 and 47), which would suggest that their identity may be less affected by others' perceptions than the other, younger participants. While this is intriguing, the relationship between age and identity is not of interest in this study, so it would be justified to simply remove the outliers from the profile analysis. However, instead of simply removing them, I conducted the analysis with and without the outliers. The removal of the outliers had minimal effects on the results, so the outliers were kept in the data.

Mahalanobis' Distances were used to identify potential outliers at the multivariate level. Mahalanobis' Distances were created by treating each of the dependent variables (the saliencies for the four identities) as predictors and regressing them on a dummy variable, using SPSS to save the Mahalanobis' distance as a variable in the database. Mahalanobis' Distance indicates how far away a participant's value is from the centroid of all the cases of predictors in a multivariate analysis. That is, it looks at all the predictors' scores and maps where one falls in the cluster. To detect multivariate outliers, I compared the Mahalanobis' Distances of each of the participants against the Table 3.12 on page 133 of the Stevens (2002). With four predictors, an N = 87, and a 5% limit, there were no multivariate outliers detected. With all of the issues addressed, I was able to commence with the profile analysis.

Figure 1 indicates clearly that the profiles for Goodrich and Psychology 101 participants are parallel. This visual evidence is supported by the test for the interaction of salience and group in the multivariate tests produced with the repeated measures

design. The test for the interaction was not significant ($F(3,83) = 1.77$, *ns*). So, contrary to Hypothesis 5, the two groups had the same pattern of identity salience.

The test for profile coincidence is taken from the within cells effects interaction term. Significant results indicate a lack of coincidence and a group main effect, which would mean that the difference in salience measures between the two groups is not due to sampling error. However, if the groups are coincident, then they would score the same on each of the measures and their profiles should essentially fall on top of one another. The between-subjects main effects were significant ($F(1,85) = 5.42$, $p = .02$, $\eta^2 = .06$), which indicated that the profiles were not coincident. So, as viewing Figure 1suggests, there was a group main effect – the gap between the two profiles was statistically significant.

Because the test for parallelism was not significant, the last item to address in the profile analysis was whether the two groups' profiles were level/flat. In other words, were the means for each of the salience scales equal to the same constant? If Hypothesis 5 were correct, then this should not be the case. Again, reviewing Figure 1 provides indication that the two groups did not score the same on all four measures, a finding that is confirmed by the within subjects main effect for salience. The univariate *F*-tests show that participants responded differently to the four measures ($F(3,255) = 126.16$, $p < .01$, $\eta^2 = .60$). According to Tabachnick and Fidell (2007), the most appropriate contrast analysis when the tests for coincidence and flatness are significantly different but the profiles are parallel is the contrast of the marginal means of the groups and the identity saliencies (p. 331).

Reviewing Table 11 shows that the lack of coincidence comes from the group differences in the saliencies for ethnic and academic identity. As was predicted, Goodrich participants have a higher ethnic identity salience than Psychology 101 participants. However, opposite to what was hypothesized, Goodrich participants had a stronger salience for academic identity, too. Also opposite to what was hypothesized, the lack of flatness in the profiles was because the salience for academic identity for both groups was significantly higher than the other saliencies. Overall, support for Hypothesis 5 was mixed. The fact that Goodrich and Psychology 101 participants differed in the predicted pattern for ethnic identity salience was encouraging. However, in terms of each identity, participants scored the measures in an opposite direction than expected.

The other important element of identity according to ICT is commitment. Hypothesis 6 stated that the commitment to academic identity of at-risk students would not be as high as the commitment to ethnicity, SES, and gender. To test this, commitment was measured by two items that reflected the two types of commitment outlined by ICT, interactional and affective (Appendix E). Hypothesis 6 was tested in the same way as Hypothesis 5, through a profile analysis. Table 13 displays the means and standard deviations of the commitment means for the two groups for each of the measures.

Similar to the issues addressed with the profile analysis for identity salience, the need for commensurable measures and adequate sample sizes for commitment was met. Standardized z-scores and Mahalanobis' Distances were used to identify potential outliers at the individual group level and at the multivariate level in the same methods used for the analyses for Hypothesis 5. There were no z-scores in any group equal to or greater

than three (the standard indicator of outliers), indicating that there were no outliers within the groups. Further, the computed Mahalanobis' Distances were not significant compared to the critical values for each respective dependent variable. Thus, there were no multivariate outliers in the data set.

Also similar to Hypothesis 5, the profiles were hypothesized to be neither parallel, coincident, nor level because Goodrich participants should have a lower commitment to academic identity. Figure 2 provides visual evidence that the commitment profiles for Goodrich and Psychology 101 participants were not parallel, which was supported by the interaction *F*-test from the multivariate analysis ($F(3,83) = 2.87$, $p = .04$, $\eta^2 = .09$). The between-subjects main effects, the test for profile coincidence, was significant ($F(1,85) = 3.85$, $p = .05$, $\eta^2 = .04$), which indicates that the profiles were not coincident. This suggested that there was a group main effect, which means the differences between the two groups on the four commitment measures was not due to sampling error. With regard to whether the means were the same for all four measures, the univariate *F*-tests of the groups ($F(3,255) = 52.01$, $p < .01$, $\eta^2 = .38$) suggested that they were not. As mentioned above, this was expected because the test for parallelism was significant.

According to Tabachnick and Fidell (2007), the interaction-contrasts analysis is most appropriate when all three elements of the profile analysis are significant (p. 339). As with the findings for the saliencies, the measure that provided the most difference between the groups was commitment to ethnic identity; Goodrich participants were more committed to their ethnic identity than Psychology 101 participants. However, similar to the findings for Hypothesis 5, the differences were opposite to that which was hypothesized.

Table 10

Correlation Coefficients for Relations Among the Salience Measures

Salience Measures	*M*	*SD*	1	2	3
1 Academic Salience	5.69	1.27			
2 Ethnic Salience	2.44	1.67	.18		
3 SES Salience	3.11	1.70	.35**	.57**	
4 Gender Salience	2.96	1.76	.28**	..54**	.59**

** Significant at the 0.01 level (2-tailed).

Table 11

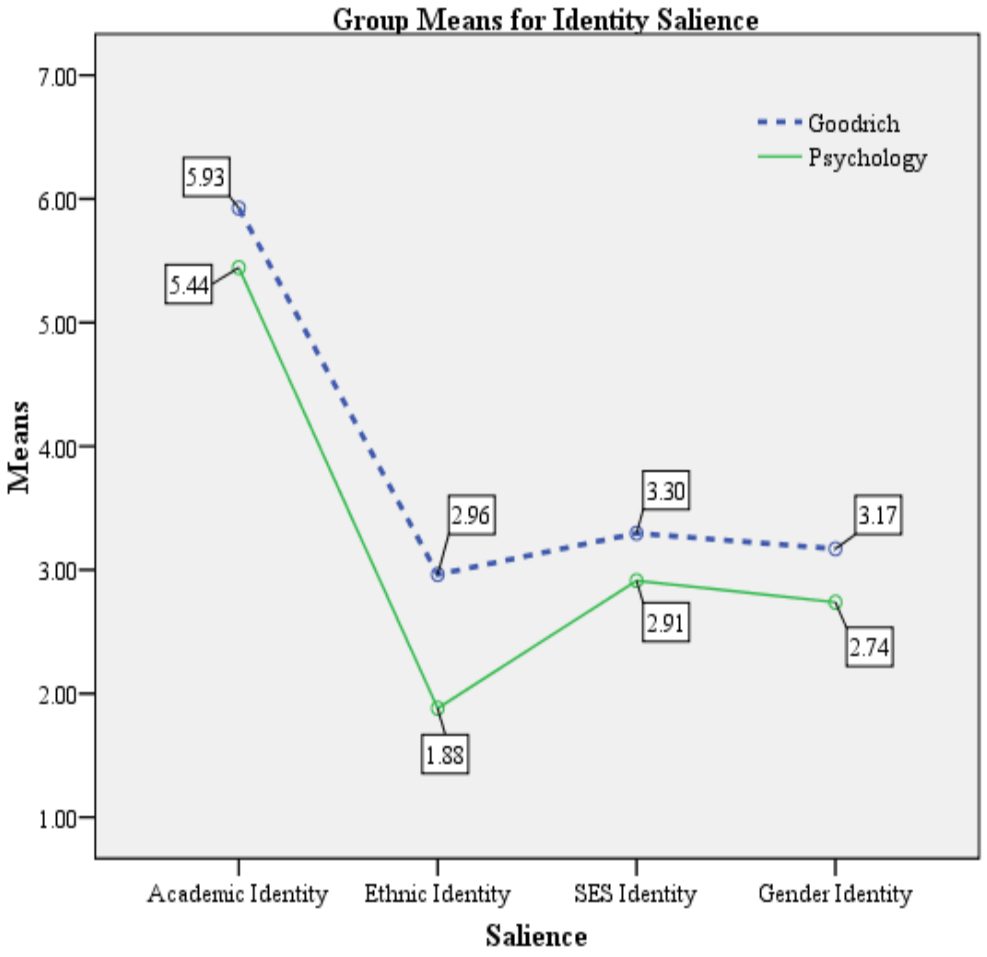
Mean Scores and Standard Deviations for Salience Measures for Group Membership

	Salience Measures							
	Academic Salience^		Ethnic Salience*		SES Salience		Gender Salience	
Group	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Goodrich	5.93	.92	2.96	1.80	3.30	1.79	3.17	1.92
Psych 101	5.44	1.53	1.88	1.31	2.91	1.61	2.74	1.57

^ $p = .08$

* Significant at $p < .00$

Figure 1


Group Means for Identity Salience
Goodrich
Psychology
Means
7.00
6.00
5.00
4.00
3.00
2.00
1.00
5.93
5.44
2.96
1.88
3.30
2.91
3.17
2.74
Academic Identity
Ethnic Identity
SES Identity
Gender Identity
Salience

The profile analysis results for group commitment regarding the four identities were mixed. The significant interaction between the groups, particularly with respect to ethnic identity, supported Hypothesis 6. More to the point, Goodrich participants were more committed to their ethnic identity than were Psychology 101 participants. However, the commitment to academic identity was much greater for both groups than to the other identities.

Mindset

Chapter IV outlined the current research on entity and incremental theories, which was used to formulate Hypothesis 7, at-risk students would be more likely to have an entity mindset than their advantaged counterparts. To test this, 12 items designed by Dweck, Chiu, and Hong (1995) (Appendix F) were used. Six questions measured performance mindset and the other six measured growth mindset. Consistent with prior research on mindset, a 7-point scale was used (1 = "Strongly Disagree" and 7 = "Strongly Agree"). The performance mindset questions, items 28 through 33, were reverse coded. In previous research, performance/growth mindset scales had a Cronbach's alpha average of .86. Their test-retest reliability has averaged .79. Although I did not have a test-retest reliability on the data for this research, the Cronbach's alpha for the present data was much lower (.49). Independent *t*-tests were conducted to test group differences in mindset. The difference between Goodrich ($M = 3.62$, $SD = .35$) and Psychology 101 ($M = 3.56$, $SD = .57$) was not significant ($t(84) = .55$, *ns*), thus Hypothesis 7 was not supported.

Table 12

Correlation Coefficients for Relations Among the Commitment Measures

Commitment Measures	*M*	*SD*	1	2	3
1 Academic Commitment	4.91	1.54			
2 Ethnic Commitment	3.02	1.50	.31**		
3 SES Commitment	3.24	1.49	.36**	.53**	
4 Gender Commitment	3.41	1.30	.29**	.39**	.54**

** Significant at the 0.01 level (2-tailed).

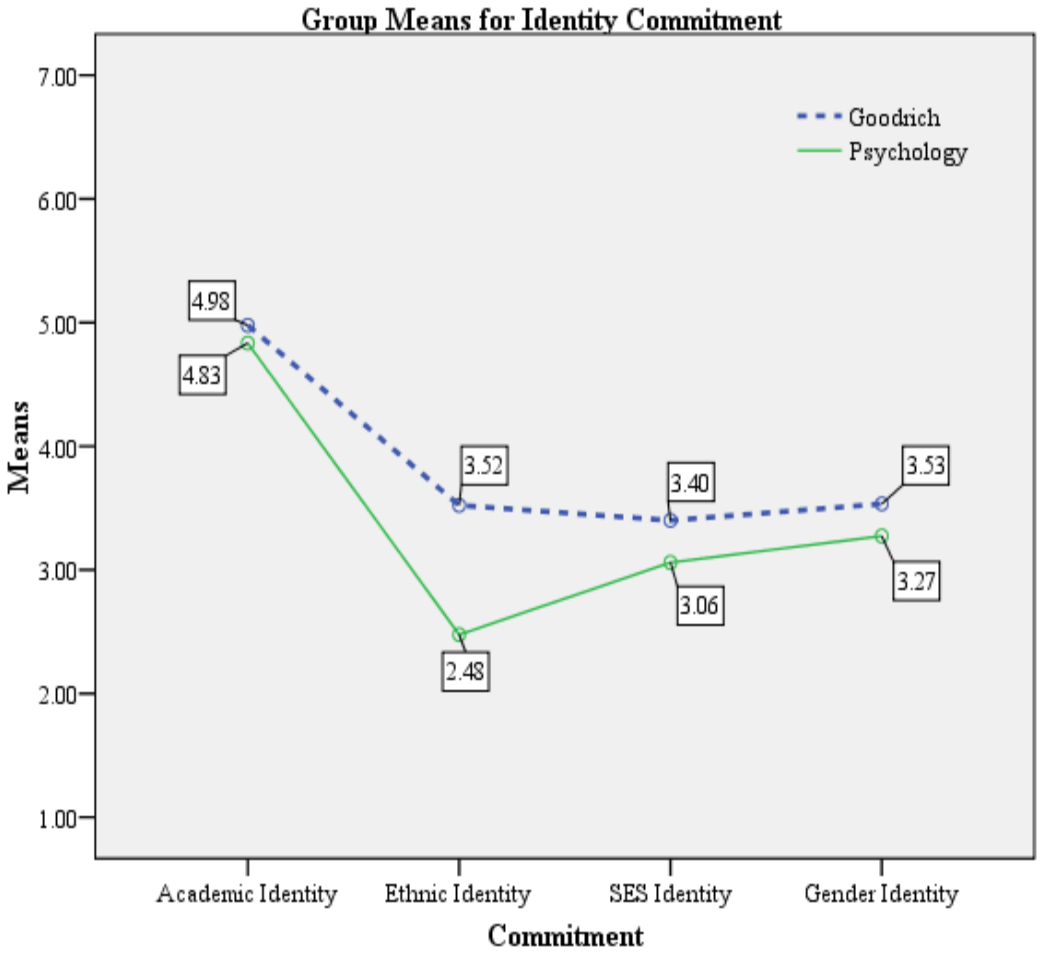
Table 13

Mean Scores and Standard Deviations for Commitment Measures for Group Membership

	Commitment Measures							
	Academic Commitment		Ethnic Commitment*		SES Commitment		Gender Commitment	
Group	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Goodrich	4.98	1.62	3.52	1.45	3.40	1.52	3.53	1.32
Psych 101	4.83	1.46	2.48	1.37	3.06	1.45	3.27	1.27

* Significant at $p = .00$

Figure 2


Group Means for Identity Commitment
Goodrich
Psychology
Means
7.00
6.00
5.00
4.00
3.00
2.00
1.00
4.98
4.83
3.52
3.40
3.53
3.06
3.27
2.48
Academic Identity
Ethnic Identity
SES Identity
Gender Identity
Commitment

Long-Term Effects

The final three hypotheses tested the potential long-term effects of the research proposed in this study. Hypothesis 8 stated that academic social network, academic identity, and mindset would predict the academic performance of at-risk and advantaged students. The measures of academic performance used to test this hypothesis were collected at the end of the participants' first semester. Two separate proxies were used to measure academic performance.

The first measure of academic performance was the participants' GPA for their fall semester of college. The second measure used was the Satisfaction with College Environment scale (SCE). The SCE questionnaire was emailed to students approximately two weeks after the fall semester was complete. Out of the 87 total participants, 74 answered the email request to complete the SCE online. Two separate regressions were used to test each of the academic performance proxies. The first regression tested the effects of academic social network, academic identity, and mindset on GPA. The means, standard deviations and correlations of the variables in the first regression are in Table 14. Because the model itself was argued to be predictive, only the elements of the profile were used as predictors in the analysis. There were no significant results ($F(3,82) = 0.20$, *ns*) in the subsequent regression analysis (Table 15).

The same predictors used in the above regression were also used in the regression for the second proxy, the SCE scale (Appendix G). The SCE scale measured student satisfaction for the following categories: relationships with faculty (three items), curriculum and instruction (seven items), student life (four items), individual support services (five items), facilities (three items), and overall (one item). The reliability of the

entire scale, with all 23 items, was high (Cronbach's alpha = .89). The results of the regression analyses for the full set of predictors on the SCE scale, which followed the same format as that for the first regression analysis, are displayed in Table 16. Similar to the first proxy, the results of the second analysis were not significant ($F(3,74) = 1.39$, *ns*),. Thus, Hypothesis 8 was not supported – the proposed model did not predict performance.

Hypothesis 9 stated that at-risk students, whom I argued have a weaker academic social network and a fixed mindset, would be less likely to expand their social networks compared to their advantaged counterparts. The Expanding Social Network scale created to test this hypothesis consisted of questions 63 and 64 (Appendix H). The reliability of the new scale was measured by Cronbach's alpha, .81. Hypothesis 9 argued that because of the inherent differences in the groups, the at-risk group would have a weaker academic social network and a fixed mindset, and thus be less likely to expand their social network. However, the results of the independent samples *t*-test demonstrated that the mean of the Goodrich participants ($M = 4.54$, $SD = 1.69$) and of Psychology 101 students ($M = 4.14$, $SD = 1.70$) did not differ ($t(69) = .98$, *ns*).

The last hypothesis to address the long-term effects of the variables evaluated in this study stated that the behavior of at-risk students would be affected by mindset such that at-risk students, who were argued to have a fixed mindset and a less salient academic identity, would be motivated to change the situation of their academic environment. Advantaged students, who were argued to have a growth mindset and a more salient academic identity, would be less motivated to change the situation. The measures developed to address this hypothesis were done so to test withdrawal behavioral. Similar

Table 14

Means, Standard Deviations, and Correlations for Fall Semester GPA and the Predictors for Hypothesis 8

	M	*SD*	1	2	3	4
1 College GPA	3.22	.73				
2 SCE Scale	4.75	.64	.15			
3 Mindset	3.70	.80	.04	.06		
4 Academic Identity	5.30	1.20	-.02	.13	-.10	
5 Academic Social Network	2.80	1.56	.07	-.15	-.01	.20

** Significant at the 0.01 level (2-tailed).

Note. Academic Salience and Academic Commitment determine the strength of Academic Identity according to ICT.

Note. Group was a predictor variable for Hypothesis 8, but it is dichotomous and was not included in the correlation matrix.

Table 15

Regression Analysis Summary for Mindset, Academic Identity, and Academic Social Network Predicting Fall Semester GPA

Variable	*B*	*SEB*	*Beta*	R^2
Full Model				.01
Mindset	.06	.17	.04	
Academic Identity	-.02	.07	-.03	
Academic Social Network	.04	.05	.08	

Table 16

Regression Analysis Summary for Mindset, Academic Identity, and Academic Social Network Predicting SCE

Variable	*B*	*SEB*	*Beta*	R^2
Full Model				.06
Mindset	.10	.16	.07	
Academic Identity	.09	.06	.18	
Academic Social Network	-.08	.05	-.19	

to the measures for Hypothesis 8 and 9, the measures to test Hypothesis 10 were collected at the end of the semester and attempted to measure participant withdrawal behavior from class during the first semester and into the next semester. To test the withdrawal behavior in their first (fall) semester, the percentage of credit hours completed divided by the number of credit hours attempted was used. That is, the measure addressed whether the participants dropped/withdrew from any of the classes for which they had registered. The average percentage of credit hours completed/attempted for all participants was 93.8% (Goodrich = 92.0%, Psychology 101 = 95.7%). The percentage of credit hours completed was regressed on group membership, mindset, and academic identity salience, but the results were not significant, $F(4,80) = 0.46$. The second measure of withdrawal behavior was simply the number of credit hours participants registered for the following semester. The average number of credit hours registered for the following semester was 13.23, $SD = 2.76$ (Goodrich $M = 12.86$, $SD = 3.05$; Psychology 101 $M = 13.60$, $SD = 2.40$). The results of the regression analyses for the number of registered credit hours was not significant, $F(4,80) = 1.25$. With the lack of significance for both regressions, Hypothesis 10 was not supported.

Statistically Demographically Indexed At-Risk and Advantaged Groups

As mentioned in Chapter VI, it was possible that the use of intact groups could result in a limitation of the data because participants in each of the intact groups may have had demographic characteristics that were more representative of the group for which they were not assigned. Due to this possibility, I retested each of the hypotheses using two new demographically indexed groups, where participants' demographic characteristics were used to classify them as "at-risk" and "advantaged." For participants

to be to be classified in the newly redefined at-risk group, they needed to have at least two of the following three characteristics: (a) be non-White; (b) have parents with a level of education that was less then an Associate's degree; and/or (c) have parents with a combined gross income that was less than $50,000. All other participants were placed in the redefined advantaged group.

By demographically indexing the participants, 12 Psychology 101 participants were grouped as at-risk and 15 Goodrich participants were indexed as advantaged. Consequently, of the original 87 participants, the redefined at-risk group had 42 participants (14 male) and the redefined advantaged group had 45 participants (18 male). Table 17 displays the frequencies (except for age) and the means for age, ethnicity and the SES variables (parents' education and income) for the redefined at-risk and advantaged groups. Similar to the results of independent *t*-tests for Goodrich and Psychology 101 participants, group differences in age were not significant ($t(84) = .28$, *ns*), but significant differences were found for ethnicity ($t(74) = 4.86$, $p = .00$), parents' education ($t(83) = 7.73$, $p = .00$) and for parents' income ($t(82) = 6.09$, $p = .00$). This was expected because the groups were differentiated based on these characteristics.

When the demographic data were originally analyzed with the Goodrich vs. Psychology101 groups, there were no significant differences on ACT scores, high school GPA, or the number of honor's classes taken. The same was true in the redefined groups, except for ACT scores. The redefined at-risk group ACT scores ($M = 22.03$, $SD = 3.45$) and the redefined advantaged group ACT scores ($M = 23.73$, $SD = 3.82$) were significantly different ($t(71) = 2.00$, $p = .05$). This difference is consistent with research

on the differences between at-risk and advantaged students generally where, despite having commensurate GPAs, at-risk students tend to do poorer on standardized tests.

Differences in Results for Demographically Indexed Groups

Of the 10 hypotheses that were tested on the original grouping of Goodrich and Psychology 101 participants, partial support was found for Hypotheses 5 and 6. When demographically indexed groups were used to test the hypotheses, support was found for Hypothesis 1 and partial support was found for Hypothesis 5 and 6. Recall that Hypothesis 1 stated that at-risk students would have smaller academic social networks than their advantaged peers, and an independent *t*-test was used to identify any group differences. Levene's Test was not significant, which suggested the assumption of equality of variance between the two groups was met. The *t*-test of the mean difference of academic social network for the redefined at-risk group ($M = 2.43$, $SD = 1.51$) and the redefined advantaged group ($M = 3.14$, $SD = 1.54$) was significant ($t(85) = 2.19$, $p = .03$). This suggests that when the participants are split up based on their specific demographic characteristics, then the academic social network of the at-risk group is significantly smaller than that of the advantaged group, which supports Hypothesis 1.

Partial support was also found for Hypothesis 5 when using the demographically indexed groupings. Hypothesis 5 stated that the academic identity of at-risk students would have lower salience than ethnic, SES, and gender identity, compared to the salience of the advantaged students. This was tested for the redefined groups in the same manner that it was tested for the Goodrich and Psychology 101 groups, through a profile analysis. Similar to the previous test of Hypothesis 5, the profiles were hypothesized to be neither parallel nor coincident because at-risk participants should have an academic

Table 17

Frequency and Mean of Age, Ethnicity, Parents' Income and Parents' Education for the Demographically Indexed Groups

Variables		At-risk	Advantaged	Total
Age	*M*	19.95	19.62	19.78
Ethnicity		At-risk	Advantaged	Total
1	White	11	34	45
2	Black	8	4	12
2	Latino	14	2	16
2	Asian	1	2	3
2	Other	8	3	11
	*M**	1.68	1.19	1.41
Parents' Education		At-risk	Advantaged	Total
1	Below 9th Grade	6	0	6
2	9th through 12th Grade	1	0	1
3	High School Diploma	15	1	16
4	Some College	9	8	17
5	Associate's Degree	4	5	9
6	Bachelor's Degree	4	19	23
7	Grad./Prof. School	1	12	13
	(Blank)	2	0	2
	*M**	3.50	5.73	4.68
Parents' Income		At-risk	Advantaged	Total
1	Less than $20,000	7	0	7
2	$20,000 - $34,999	12	4	16
3	$35,000 - $49,999	9	6	15
4	$50,000 - $64,999	6	8	14
5	$65,000 - $79,999	2	8	10
6	$80,000 - $94,999	2	7	9
7	$95,000 or more	1	12	13
	(Blank)	3	0	3
	*M**	2.85	4.98	3.99

* Means are significantly different, $p < .00$

identity of lower salience. Table 18 displays the means and standard deviations for the two redefined groups' salience with regard to the four identities.

Based on the *F*-test from the multivariate analysis, the interaction of salience and group was marginally significant, indicating that the groups were not parallel ($F(3,83) = 2.52$, $p = .06$, $\eta^2 = .08$), which was supported by the visual feedback from Figure 3. The test for coincidence, the between-subjects main effects term, was not significant ($F(1,85) = 0.03$, $p = .86$), which indicated that there was not a group main effect on the salience measures across the four identities. Because the test for non-parallelism was marginally significant, the mean salience scores were not expected to be equal, which is supported statistically. This finding is indicated by the significantly different scale means of the four measures as tested by the univariate *F*-tests of the measures ($F(3,255) = 126.33$, $p = .00$, $\eta^2 = .60$). Participants for each group had a higher salience on academic identity than on the other identities, consistent with the results from the analyses on the original groupings and opposite to the logic of the hypothesis.

Because non-parallelism was very close to significant, coincidence was not significant, and non-flatness was significant, the most appropriate contrast analysis was at the simple-effects, examining the means between the groups for each identity salience (Tabachnick & Fidell, 2007, p. 333). After examining the differences of the means for categorically indexed at-risk and advantaged participants separately for each identity salience, the most noticeably disparate mean between the two groups was that of ethnic identity salience (Table 18). In line with the findings for intact groups, the salience that was strongest for both groups was that associated with academic identity.

The last analysis that produced significant results for the categorically indexed

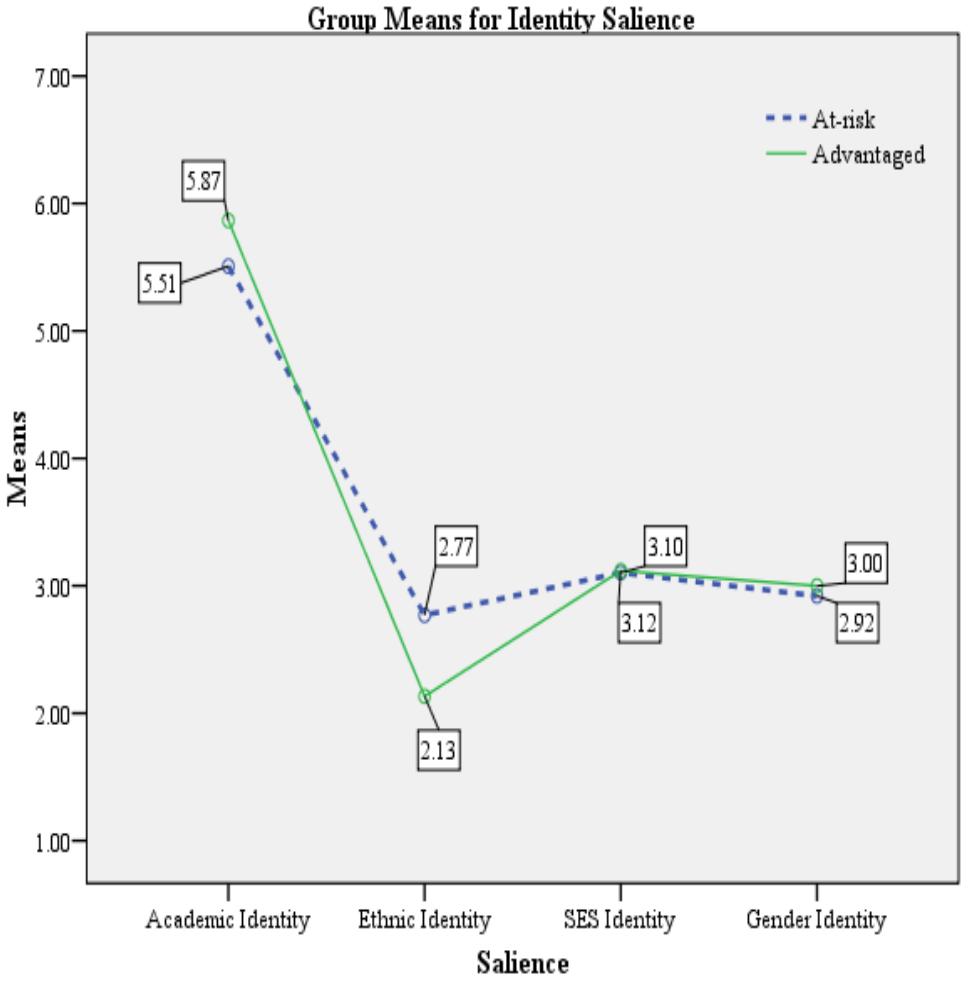
Table 18

Mean Scores and Standard Deviations for Salience Measures for Demographically Indexed Group Membership

	Salience Measures							
	Academic Salience		Ethnic Salience^		SES Salience		Gender Salience	
Group	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
At-risk	5.51	1.30	2.77	1.71	3.10	1.94	2.92	1.94
Advantaged	5.87	1.23	2.13	1.58	3.12	1.70	3.00	1.60

^ $p = .08$

Figure 3


Group Means for Identity Salience
7.00
6.00
5.00
4.00
3.00
2.00
1.00
Means
At-risk
Advantaged
5.87
5.51
2.77
2.13
3.10
3.12
3.00
2.92
Academic Identity
Ethnic Identity
SES Identity
Gender Identity
Salience

groups was for Hypothesis 6, which stated that the commitment to academic identity of at-risk students would not be as high as the commitment to ethnicity, SES, and gender. This was also tested using profile analysis. Table 19 displays the means and standard deviations for the two demographically indexed groups' commitment to the four identities. Figure 4 indicates that the commitment profiles for redefined at-risk and advantaged participants are not parallel, which is supported by the interaction *F*-test from the multivariate analysis ($F(3,83) = 2.75$, $p = .05$, $\eta^2 = .09$). The between-subjects main effects, the test for profile coincidence, was not significant ($F(1,85) = 1.00$, $p = .75$).

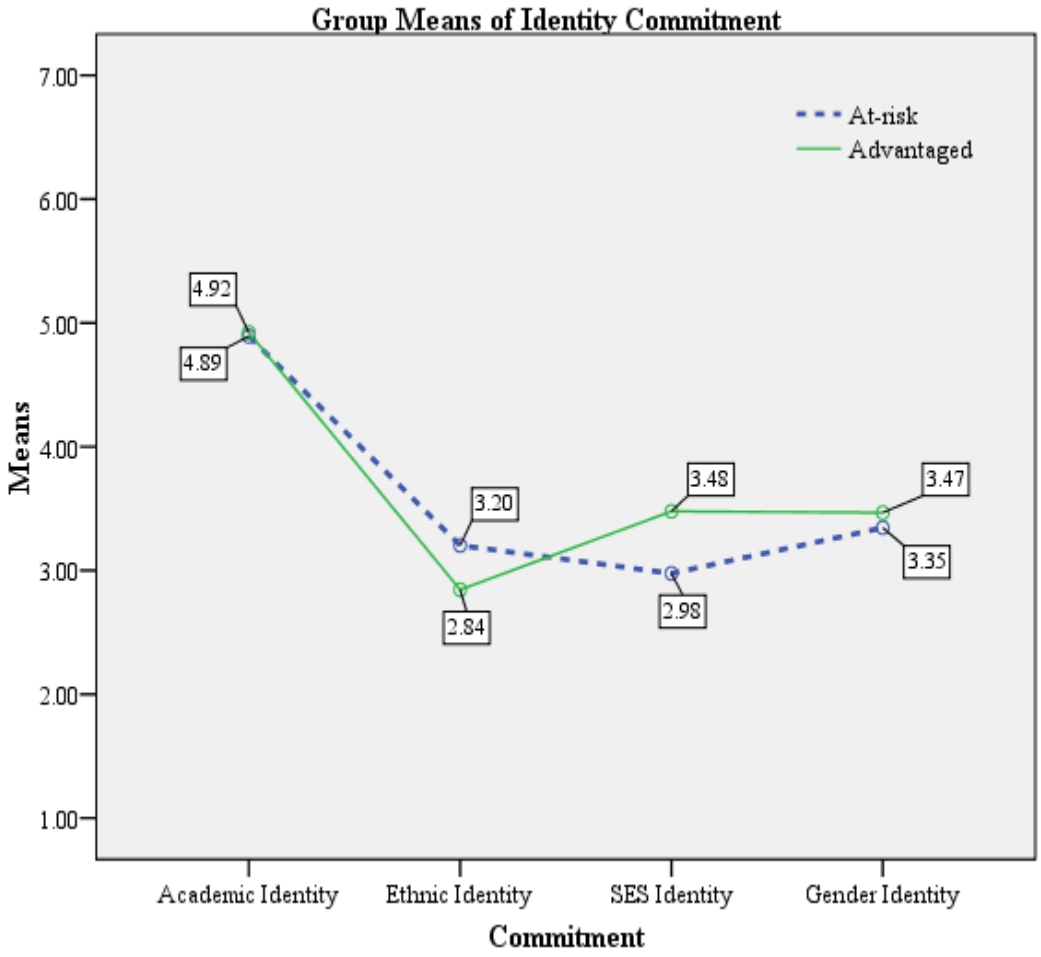
With regard to whether the two groups scored the same on all four measures, the univariate *F*-tests of commitment measures ($F(3,255) = 51.02$, $p = .00$, $\eta^2 = .38$) suggests that they did not. However, similar to the previous profile analysis and those for the Goodrich and Psychology 101 groupings, the mean differences occurred for academic commitment but were opposite to that which was hypothesized. Similar to the findings for the profile analysis of salience for the categorically indexed group, the appropriate contrast analysis for commitment is a simple-effects analysis. There were no statistically significant mean differences between the groups for any of the identity commitments, but the trend of being more committed to academic identity than the other identities for intact groups was also present here.

Table 19

Mean Scores and Standard Deviations for Commitment Measures for Demographically Indexed Group Membership

	Commitment Measures							
	Academic Commitment		Ethnic Commitment		SES Commitment		Gender Commitment	
Group	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
At-risk	4.89	1.74	3.20	1.57	2.98	1.60	3.35	1.44
Advant.	4.92	1.34	2.84	1.42	3.48	1.35	3.47	1.16

Figure 4


Group Means of Identity Commitment
7.00
6.00
5.00
4.00
3.00
2.00
1.00
Means
At-risk
Advantaged
4.92
4.89
3.20
2.84
3.48
2.98
3.47
3.35
Academic Identity
Ethnic Identity
SES Identity
Gender Identity
Commitment

Chapter VIII

Discussion

It seems intuitive that living in poverty, having low levels of family support, coming from poorly funded primary education systems, and being an ethnic minority would make succeeding in higher education a more difficult task for at-risk students than for students who are not marginalized by these or others factors. However, how these elements actually come together to impact the performance of at-risk students and how to develop specific action plans to improve the performance of at-risk students is not as intuitive. The purpose of this research was to test a specific framework that would help explain the low retention and graduation rates of at-risk students based on the characteristics that typically define them.

The framework I tested was composed of three specific elements. First, I proposed that at-risk students would have a limited academic social network, which would affect their performance in higher education because it would restrict their preparation for college, their decision to actually go to college, and their ability to adapt to and persist in college. Second, I proposed that at-risk students would identify more strongly with identities that were ascribed and in which they were immersed. The stronger identification with these identities (i.e., ethnicity, SES, and gender) compared with the weaker identification with their academic identity, which is typically associated with qualities of mainstream, non-marginalized populations, would affect the performance of at-risk students in higher education because their behavior would be motivated to be consistent with the characteristics of the stronger identities. Third, I proposed that at-risk students would be performance-minded, which is associated with

helplessness and withdrawal behavior in the face of adversity. I suggested that this performance mindset could be developed through a lower level of educational rigor in primary and secondary preparation such that smart, able-minded students could perform well in school without much effort. This would develop a sense of being "smart." I proposed that performance in higher education would be affected because the possibility of being academically challenged increases, which would trigger helplessness and withdrawal behavior in performance-minded, at-risk students.

To test the framework proposed, I identified three intact groups that reflected the characteristics of either at-risk students or those that were representative of average/advantaged college students based on the demographic characteristics of the groups as a whole. I compared how these intact groups differed with respect to academic social network, academic identity, and mindset, and then tested whether this framework affected actual performance after the first semester in college. While the use of this methodology was justified, philosophically and empirically, there were three main issues that surfaced. The first two issues were a result of using intact groups as proxies for at-risk and advantaged students.

The first issue with using intact groups as proxies was the possibility that individuals within each intact group were actually better classified as members of the other group. That is, the "at-risk" group could have individuals who were better demographically defined as advantaged students, and vice versa. In order to reduce this factor from influencing the data, each of the proposed hypotheses in this study was re-tested after demographically indexing each individual and creating two comparison groups based on this index. Thus, the effect of this issue could be measured by comparing

the results derived from using the intact groups and those from the demographically indexed groups. However, there was a second methodological issue that was not as easily addressed.

Because the defining characteristics that separate at-risk and advantaged groups are not necessarily concrete or definitive, it was possible that each intact group did not completely represent the group for which it was intended. So, although these groups on the whole were demographically distinct and representative of either at-risk or advantaged students, it was possible that the groups may not have been adequate proxies. In order to reduce the effect of this second methodological issue, three groups were targeted for this research. Based on the statistics cited in the introduction of this paper, it was reasonable to assume that in an average four-year, liberal arts university, most of the student population would be average and not have many of the characteristics associated with at-risk students (an assumption that was supported by the demographic statistics presented in this paper). Thus, students in a traditionally large introductory class, Psychology 101, were used as the proxy for average students. Because at-risk students are not are not easily defined and because at-risk students in general represent a small percentage of a four-year, liberal arts university population, two groups were identified as proxies for at-risk students. However, as stated in Chapter IV, one of the intact groups did not participate in this study. Thus, the possibility of this methodological issue influencing the results was increased.

A third methodological issue that presented itself in this research was with regard to the long-term tests. In order for the purposes of this research to be fully addressed, it was not enough to simply identify whether at-risk and advantaged students were different

with regard to their academic social network, their academic identity, and their mindset. After all, demonstrating that they are different on those elements could be deduced intuitively based on the demographic differences of the two groups. The key to this research was to identify whether these differences actually led to a difference in academic performance in college. To determine this, participants' academic social networks, academic identity, and mindset was measured early in their first semester in college. Then their performance was evaluated at the end of the first semester. However, the methodological issue that arises is that of adequacy in terms of long-term spacing. The differences in academic performance may not manifest after only one semester in college. Although many universities use the freshman to sophomore retention rates as a measure of their students' likelihood to graduate, this does not necessarily mean that one semester is adequate. While there are other methodological issues in this research study, the mixed results reported in Chapter IV seem to have been influenced most by these three.

Results Summary and Discussion

The first step in this research was to test whether at-risk and advantaged students differed on the three elements in the framework proposed. The first element in the framework that I proposed in this study suggested that at-risk students would have limited academic social networks (Hypothesis 1), which if true would provide a partial explanation of why at-risk students do not succeed in higher education compared to other students because, as stated in Chapter II, a strong and elaborate academic social network can be critical to a student's success in higher education. The results of this study seemed to support this position. Although the difference in academic social networks between the intact groups, Goodrich and Psychology 101, was not significant, it was in the

direction hypothesized. Furthermore, the difference between the demographically indexed groups was significant – at-risk students did indeed have smaller academic social networks.

The second element of the framework I tested in this study was with regard to the influence of identity on at-risk and advantaged students. Previous research, as outlined in Chapter III, demonstrated that identity can be a powerful motivator of behavior, and I proposed that identity could play a role in the disparate levels of success between at-risk and advantaged students. Specifically, based on the qualities that distinguish at-risk students from advantaged students, I proposed that there would be group differences in ethnic and SES identity. Also, for the same reasons that I argued that the academic social networks of at-risk students would be distinct from those of advantaged students, I proposed that at-risk students would not manifest the characteristics associated with academic identity. While I did not specify how or whether there would be a group difference regarding the last category of identity included in the profile, gender identity, this aspect of identity has been among the most researched, and its influence on academic performance has been demonstrated to be powerful. Thus, I included it in this research.

I used two identity theories to test whether there were group differences with regard to academic identity. The first theory I employed, Self-Categorization Theory (SCT), explains identity through the context of social categories. It states that when different social categories are present that do not compliment or "fit" each other, individuals are motivated to embody behavior that is consistent with the characteristics of the more desirable social category. However, behavior is not likely to change if those different social categories fit each other, if a person does not identify more strongly with

one over the other(s) (depersonalization), or if one of the categories is not more accessible than the other(s). Using this theory, I suggested that identity could provide an explanation as to why at-risk students do not perform as well in higher education as advantaged students. That is, higher education provides an environment where several social categories can be engaged. Primarily based on the qualities that distinguish at-risk students from advantaged students, I proposed that there would be group differences in comparative fit between the academic social category of identity and the other three categories (ethnicity, SES, and gender) (Hypothesis 2). I also proposed that at-risk students would be less likely to identify themselves as "academic" than as members of their ethnic group, as members of their SES class, or with their gender (Hypothesis 3). Finally, I proposed that if membership in the ascribed categories was made more accessible by highlighting the differences between the identities (e.g., asking questions regarding ethnicity and SES at the beginning of a survey), at-risk students would identify less with their academic identity (Hypothesis 4). If the four proposed social categories did not fit each other for at-risk students, these students would be motivated to behave based on characteristics of the social category they identified with the most. Thus, if these propositions were correct, at-risk students would be more likely to have comparative fit discrepancies and less likely to identify with academics, especially when the other social categories were more accessible. All this would suggest that at-risk students would be less likely to behave in a manner that promotes academic social categorization, which would help explain why they do not have the same level of success as advantaged students. However, the results of this study did not support these propositions.

As outlined in Chapter V, none of the tests of Hypotheses 2, 3, or 4 had significant results, which means there were no significant differences for the three elements tested for SCT. This could suggest several things. I argued in Chapter III that the qualities associated with an academic social category would reflect those consistent with mainstream America. Thus, at-risk students who were hypothesized to see their ascribed social categories as more desirable would be motivated to reject behavior consistent with the academic social category. However, it is possible that the concept of the social category of "academic" is multicultural and encompasses several other social categories, which is possibly even truer for college students. Or, on a similar note, it is possible that college students see others of their own ascribed membership as being more multidimensional than I hypothesized. While these explanations may be correct, evidence from the results of the tests of Identity Control Theory (ICT) suggests that the second methodological issue raised earlier in this chapter, characteristics of the proxies used to test these hypotheses, may be the cause of the unexpected findings.

The second theory used to test the potential differential influence of identity for at-risk and advantaged students was Identity Control Theory (ICT). While SCT addresses identity as a social structure that influences behavior, ICT addresses identity from the perspective of the individual. ICT states that identity can influence behavior depending on how salient the identity is and how much commitment is associated with the identity. The higher the salience and commitment, the stronger the motivation will be to maintain behavior consistent with the characteristics associated with that identity. I proposed that compared to advantaged students, at-risk students would have higher salience and commitment for the ascribed identities (ethnic, SES, and gender) compared

to academic identity (Hypotheses 5 and 6). Based on the differences between the two groups, the differential salience and commitment was not expected to occur with advantaged students. Interestingly, the results of the tests were mixed. Results demonstrated that Goodrich participants had higher salience and commitment regarding ethnic identity than Psychology 101 participants. This was also true when the data based on demographically indexed groups was used for the analyses. These findings are consistent with the hypotheses regarding the influence of identity. In general, at-risk participants had a higher salience for and commitment to their ethnic identity compared to their advantaged counterparts. According to ICT, at-risk students would be more likely to exhibit behavior that was consistent with their ethnic identity than advantaged students. However, the analyses also indicated that the most salient identity, which was also the identity to which both groups were most committed, was academic identity.

The finding that academic identity was the strongest of the four tested was opposite to what was hypothesized. According to ICT, this finding suggests that the identity that has the most influence for the participants used in this study is that associated with doing well in school. This finding was true for both groups, whether they were the intact groups (Goodrich and Psychology 101) or the demographically indexed groups. There are two possible explanations for this unexpected finding. First, because the academic identity of all the participants was so much stronger than that of the other identities, it is possible that this population, college students, actually identifies more with an academic self than other selves. This potential explanation is certainly plausible. After all, as I suggested in Chapter III, being in college does suggest either an affinity for and/or a strong dedication to education. This would explain why the participants'

academic identity was so strong and why the tests of the hypotheses for SCT were not significant. However, there is another explanation that may be more likely, the second methodological issue stated above.

While it is possible that college students will have a strong academic identity, the strength of this identity reflected in the data for this study may be due to characteristics of the particular intact group used to represent the at-risk population, Goodrich participants. This use of Goodrich participants was justified theoretically and further supported empirically, as demonstrated by the demographic differences outlined in Chapter V. However, it is important to note that the differences in the tests of identity demonstrate that Goodrich participants had considerably more salience for academic identities than Psychology 101 participants. This is interesting because, when the groups were redistributed based on demographic characteristics of the participants, the difference in salience between the at-risk and advantaged students disappeared. This would suggest that the strength of academic identity for the at-risk population is actually an artifact of the proxy used for at-risk students. This explanation is further supported by the results from the tests of the demographically indexed groups. As would be expected, the same results that were significant for the intact groups were significant when they were demographically indexed (i.e., parent's education and income of demographically indexed at-risk participants was significantly lower than that of the advantaged participants). However, there were some more significant findings that surfaced with the demographically indexed groups that were not present in the intact groups. First, there was a significant group difference in the ACT for the demographically indexed group such that at-risk students did significantly poorer. Second, the academic social network

of the at-risk group in the demographically indexed grouping was significantly smaller than that of the advantaged group. These results were what were expected and provide support for the possibility that the intact groupings may have introduced bias that affected the results.

While the strength of academic identity of the initial at-risk grouping was surprising, and it went against the hypothesis, the fact that only Goodrich participants were used for the at-risk proxy suggests an explanation. Goodrich scholars, by definition, receive a scholarship to attend college. After the hurdle of financial need is met, the selection criteria are similar to other merit-based scholarships. This makes it more likely that the academic identity of this group will be salient and commitment will be strong. This effect is likely to be exacerbated by the fact that all of these participants are, after all, college students. Thus, the finding that academic salience was high is understandable. It is also likely that the third element I tested in this study was affected by the strength of the academic identity of the participants.

The third element I proposed to help explain the difference in success between at-risk and advantaged students was mindset. In Chapter IV, I highlighted the characteristics of performance- and growth-minded students and suggested that at-risk students would be more likely to be performance-minded (Hypothesis 7). This mindset, and the maladaptive learning patterns associated with it, would help explain why at-risk students do not persevere in higher education. The results of this study suggested this was not true. One potential reason why support was not garnered for this proposition is because of the age and maturity of the participants in this study. Most of the research on entity and incremental theories has been done on participants in mid- to late-childhood,

whereas this population was mostly adolescent. It is plausible that the difference in age and the fact that they were all college students contributed to the lack of significance as the literature review in Chapter IV suggests, mindset is malleable. So, it is reasonable to assume that the differences in age between the participants in this study and those in the establishing research on this topic may result in distinct differences. It is also just as likely that the proposal for this research was incorrect; there may not be distinct differences between at-risk and advantaged students in terms of mindset.

The last set of analyses completed for this study dealt with the long-term effect of the model of success proposed. The long-term components of this research, intended to test the influence of academic social networks, academic identity, and mindset did not prove to be significant. Originally, I expected that if my assertion that these three elements strongly influence success in higher education, then they should have predicted how well the participants actually did in their first semester (Hypothesis 8). However, this was not the case. The model overall did not predict GPA for the first semester of college, nor did it predict the participants' satisfaction with college life.

Along with proposing that the overall model would predict success in higher education, I also expected that at-risk students would be less likely to expand their academic social network in college compared to advantaged students (Hypothesis 9). I believed this because I expected that they would have smaller academic social networks and that they would have a performance mindset. Expanding their academic social network would require at-risk students to include others that did not necessarily "fit" into their current network. Furthermore, if they were indeed more performance-minded, they would be more likely to make snap judgments about others who did not appear to "fit."

However, this prediction was not supported. This was not surprising with the intact groups because, statistically, there were no differences in their academic social networks at the beginning of the semester, contrary to Hypothesis 1. Also, the fact that the Goodrich participants had such a strong academic identity suggests that they would not necessarily avoid expanding their current academic social network. On the contrary, these students identify with academics and were probably more likely to collect other like-minded individuals into their networks. Despite the fact that the academic social network of the demographically indexed at-risk students was statistically smaller than the advantaged groups, there was no difference in how the demographically indexed groups expanded their social network either.

The final long-term proposal I made in this research was that at-risk students would be more likely to withdraw from their academic environment (Hypothesis 10). I believed this because I expected that their academic identity would not be as strong as other competing identities. The other contributing factor to this belief was that the performance mindset, which I expected of at-risk students, would lead them to believe that their ability to perform well in college would be fixed, so any academic difficulties encountered would motivate them to change that which was not fixed – the environment – and they would demonstrate withdrawal behavior. However, again, this was not the case.

It is possible that the strong academic identity of the Goodrich participants attenuated the effects of the long-term analyses because, as illustrated in the significantly different demographic data, there were group differences overall. The potential bias in the results may also provide an explanation for why there were no significant findings in

any of the long-term analyses. The strong academic identity would predict a higher GPA and satisfaction with college, but the other two elements of the model – academic social network and mindset – may be suppressed or actually suppress the high academic identity. Also, recall that in Chapter IV I proposed that at-risk students would have a performance mindset, which would lead to counter productive behavior once a problem arose in college. However, as indicated in the literature review on mindset, when there is a very high level of confidence in a particular area, the motivation of performance-minded students actually resembles that of growth-minded individuals – there is a high degree of persistence. Thus, even in the face of challenges, highly confident performance-minded students will continue to push forward in college. So, despite there not being a group difference in performance or growth mindsets of the participants in this study, the fact that they all had strong academic identities would suggest that they would all work hard and persevere – suggesting another reason how the results of this research are affected by the strong academic identity.

General Discussion

It would appear that the potential bias in favor of and identification with academics for the at-risk population proxy has affected the hypothesis tests of this research. However, these biased results may actually provide support for the ultimate purpose of this study. The motivation behind this study was to ultimately improve the success of at-risk students in higher education. Traditionally, the Goodrich Scholarship Program has proven to be very successful in terms of retention and graduation, retaining more than 90% of their students from the freshman to sophomore year and having a six-year graduation rate of 56%. Goodrich Program students out perform the general

population of the university that houses the program according to both of these measures. It is reasonable to assume that the strong academic social network and academic identity of the Goodrich participants is related to their success in higher education. So despite having many of the characteristics of at-risk students, an examination of the success of these students may be supportive of the goals of this research. That is, these data would seem to suggest that developing at-risk students' academic social network and academic identity may indeed be a means to improve their success in higher education. I would be remiss if I did not acknowledge the possibility that there may be inherent traits among the Goodrich students that promote both their larger academic social network and their strong academic identity. Thus, future research should make concerted efforts to identify participants who will not necessarily be predisposed to these characteristics.

Limitations

One of the biggest limitations of this study was probably the use of Goodrich Scholars as the proxy for at-risk students. Initially, this group of students seemed well-suited for the study because its members had many of the characteristics of students traditionally considered at-risk. The justification for using these participants as a proxy was further supported by the analyses of demographic differences between the two intact groups. Goodrich participants were statistically different in ethnicity and socioeconomic status than Psychology 101 participants. Goodrich students were more likely to be ethnic minorities, have lower household incomes, and have lower levels of formalized education. However, the very strong academic identity of this group seems to have affected the results considerably. Thus, having only this population represent at-risk students was a limitation in getting a clear picture of how the three elements of academic

social network, academic identity, and mindset truly influence success in higher education.

The lack of participation of the Project Achieve students limited this research because their inclusion could have shed a different light on these results. It is possible that they, too, would have had a strong academic identity, as did all of the participants in this study. This would have suggested that college students, in general, come stocked with a strong academic identity. However, if the academic identity of Project Achieve students were weaker than that of other participants and the long-term tests proved to be true, then this would have suggested that academic identity is an influencing factor for students' success in college. The fact that the Project Achieve students also apparently self-selected out of the research could be telling. Perhaps completing a questionnaire for an academic study is not interesting for them. This is not to say that the Goodrich or Psychology 101 students would have participated if they did not receive any form of remuneration, but this question can only be speculated on because no data were collected from the third group. Future research might include as subjects students who have characteristics that would traditionally classify as at-risk, but without a predisposed characteristic inherent in the group that may affect the results, such as a potentially uncharacteristically strong academic identity.

Another limitation to this research that seems to have affected the results of this study comes in the form of the third methodological issue raised earlier in this chapter, the inadequate long-term duration. A long-term element was implemented for this study, but it is unlikely that the effects of the elements proposed in this study were truly tested after just one semester in college. As indicated in the introduction to this dissertation,

success in higher education is typically measured in two ways, retention from freshman to sophomore year and eventual graduation. Looking at how these elements affect performance after only one semester may not be an accurate measuring stick. After all, many students who perform poorly may not know that they are doing poorly until after the first semester. Thus, the characteristics of the elements proposed in this study, like mindset, may not be triggered after such a short period of time. Also, it could be argued that the more strenuous academic work would not come until after the sophomore year when students begin taking higher level courses. Thus, their cognitive effort and their study skills, or lack thereof, may not need to be engaged. Furthermore, as stated in the introduction, mindset is not necessarily fixed. Long-term research of college students could help identify whether this environment has an effect on their mindset. After all, part of the focus of a liberal arts university is to provide a well-rounded education and to expand the mental world within which people live. It would be very interesting to see whether people's mindset does change as a by-product of this environment. Future research should lengthen the time for which it evaluates the effects on academic success. This is a very important element, particularly for this area of study. Long-term research is always a plus, when it can be implemented. However, because the overall purpose of this research was to find a means to improve the success of high potential at-risk students, a long-term approach should be pursued.

Conclusion

Based on the results from this study, how do at-risk and advantaged students differ in terms of their academic social networks, academic identity, and mindset? Furthermore, how do these differences, if any, affect academic performance? In general,

at-risk students had smaller academic social networks and stronger ethnic identities than advantaged students. Overall, the academic identities of both at-risk and advantaged students were stronger than the other identities measured (i.e., ethnic, SES, and gender). With regard to mindset, there were no group differences. Similarly, there were no significant findings in terms of how academic social network, academic identity, and mindset affected academic performance.

Interestingly, the unexpected strength of the academic identity for the at-risk participants makes it difficult to conclusively determine to what degree at-risk and advantaged students differ. It is possible that the strength of the academic identity for the at-risk students is a form of participant bias, as suggested in this paper, which would limit the ability to generalize these results beyond this study. However, it is also possible that the findings of this study accurately represent the academic identity of college students, at-risk and advantaged alike. If this were the case, this would suggest that the framework proposed in this study regarding academic identity may be incorrect; academic identity is not an important contributing factor to the lack of success of at-risk students. Thus, maybe the energy and focus of strengthening academic identity as a means to improve the success of at-risk students in higher education ought to be directed elsewhere. Unfortunately, the interpretation as to whether the strength of the academic identity of at-risk students in this research is due to participant bias or actual artifacts of the population can not be conclusive because of the lack of variability in the research pool, both in terms of intact groups and individual participants. But these data encourage future research to continue to explore and attempt to replicate the results.

Future Directions

As outlined above, there are many options for researchers as we strive to improve the success of at-risk students in higher education. One area that should be further explored is how success is measured. Traditionally, retention and graduation are the measuring sticks. However, future research should expand the options that can help refine our understanding of success in higher education for at-risk students. The usual academic outcomes should certainly be included, such as retention, graduation and GPA. However, success in higher education need not be restricted to these outcomes. For instance, success may also be reflected by students who incorporate civically conscious behavior, such as voting, attending cultural events, and volunteering time and money to non-profit organizations. These behaviors, that are not normally associated with at-risk populations, may prove to be equally if not more important measures of success. While identifying other options to measure success of at-risk students is important, there is still a need for future research to refine how "at-risk" is characterized and measured.

The limitations addressed in this discussion demonstrate that identifying the best intact group is difficult, which can be partially mollified by demographically indexing participants. But, ultimately, how "at-risk" is characterized may be the bigger problem. This research found support that academic identity may be another characteristic that should be included in the description. If there is merit for adding academic identity to the definition, it is possible that there are other important characteristics that should be included to identify which students are at-risk for graduating. Related to the question of which characteristics should be included in determining at-risk, how these defining characteristics are related to each other and actual success is still ambiguous. Future

research should develop and employ continuous scales for each of the at-risk characteristics, which should provide more evaluative power. If future research can refine how we characterize at-risk students and use continuous scales to measure the characteristics, we will better understand how the characteristics interact, how the characteristics relate to success outcomes, and potentially how to assess the degree to which students are at-risk.

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Appendix A

Demographics

Please provide either your NU ID# **OR** your name so that I can contact you at the end of the semester.

NU ID#: _ _ _ - _ _ - _ _ _

Print Name: _____

First Middle Last

1. Sex (check one): _____ Male _____ Female
2. Age (fill in): ___
3. Ethnicity (check all that apply):

Asian__ Latino__ White__ Black__ Native American__ Other (specify):_____

Socioeconomic Status:

4. Please check the highest level of education that was completed by either of your parents.

____Below 9th Grade
____Between 9th and 12th Grade
____High School Diploma
____Some College
____Associate's Degree
____Bachelor's Degree
____Graduate/Professional School

5. What is the approximate total combined gross income (income before taxes) of your parents? (check one)

____Less than $20,000
____$20,000 - $34,999
____$35,000 - $49,999
____$50,000 - $64,999
____$65,000 - $79,999
____$80,000 - $94,999
____$95,000 or more

Secondary School Preparation:

6. Please fill in your high school GPA. (example: 2.56) _____
7. Please fill in your cumulative ACT score (if you took the ACT more than once, please use your highest score). _____
8. Did you take any honors courses or college preparatory courses while in high school? (check one) _____Yes _____No

Appendix B

Social Networks

9. Think about the knowledge you have about college and college life. How did you get this information? (open ended)

_____
_____
_____
_____

10. In general, who are the people you go to for advice/support? (Please do not give the names of people – state their relationship to you. For example, brother, father, best friend, pastor, etc.)

_____
_____
_____
_____

11. Which of the people in the previous question attended college (please list them by relationship as in question 11)?

_____
_____

12. Who, if anyone, do you know that is VERY close to you who has attended college? (Again, only list people by their relationship to you, e.g., brother, father, etc.)

_____
_____

13. How much have **the members of your family** encouraged you to pursue a college education? (circle one)

1	2	3	4	5	6	7
Not at All						Very Much

14. How much have **your friends** encouraged you to pursue a college education? (circle one)

1	2	3	4	5	6	7
Not at All						Very Much

15. How much have **your teachers/counselors** encouraged you to pursue a college education?

1	2	3	4	5	6	7
Not at All						Very Much

Appendix C

Comparative Fit, Exploratory, and Depersonalization

Participants will answer each of the following questions using the semantic differential scales at the bottom of the page.

16. Usually a college student is…(comparative fit measure)
17. Usually people that have the same ethnicity as me are… (comparative fit measure)…
18. Usually people that are in the same socioeconomic status as me are… (comparative fit measure)…
19. Usually people that are the same sex as me are… (comparative fit measure)
20. Usually my friends are…(exploratory measure)
21. Usually the members of my family are…(exploratory measure)
22. I am usually…(depersonalization measure)

1	2	3	4	5	6	7
Bad, Awful			Neither			Good, Nice
1	2	3	4	5	6	7
Powerless			Neither			Powerful
1	2	3	4	5	6	7
Slow, Quiet, Lifeless			Neither			Fast, Noisy, Lively
1	2	3	4	5	6	7
Emotional			Neither			Not Emotional
1	2	3	4	5	6	7
Individualistic			Neither			Cooperative
1	2	3	4	5	6	7
Illogical			Neither			Logical
1	2	3	4	5	6	7
Unfriendly			Neither			Friendly
1	2	3	4	5	6	7
Unintelligent			Neither			Intelligent

Appendix D

Identity Salience

Using the following scale, please answer the following questions:

1	2	3	4	5	6	7
Not at all important						Very Important

23. How important is it to you to have your **close friends** think of you in terms of your…
    a. Academic Success
    b. Ethnicity
    c. Socioeconomic Status
    d. Gender

24. How important is it to you to have your **parents** think of you in terms of your…
    a. Academic Success
    b. Ethnicity
    c. Socioeconomic Status
    d. Gender

25. How important is it to you to have **people in general** think of you in terms of your…
    a. Academic Success
    b. Ethnicity
    c. Socioeconomic Status
    d. Gender

Appendix E

Commitment

Interactional/Extensiveness

26. Think about all of the people you know. How many of these people do you know as a result of your…

a. Success in school

1	2	3	4	5	6	7
None						A lot

b. Ethnicity

1	2	3	4	5	6	7
None						A lot

c. Socioeconomic Status

1	2	3	4	5	6	7
None						A lot

d. Gender

1	2	3	4	5	6	7
None						A lot

Affective/Intensiveness

27. How important is it to you that the people that are the closest to you share with you the following characteristics?

a. Success in school

1	2	3	4	5	6	7
Not at all important						Very Important

b. Ethnicity

1	2	3	4	5	6	7
Not at all important						Very Important

c. Socioeconomic Status

1	2	3	4	5	6	7
Not at all important						Very Important

d. Gender

1	2	3	4	5	6	7
Not at all important						Very Important

Appendix F

Mindset

Please use the following scale to answer the items below:

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

(Performance Mindset)

28. It is very important to me to do well in my courses.
29. I really want to get good grades in my classes.
30. A major goal I have in my courses is to perform really well.
31. It is important to me to confirm my intelligence through my schoolwork.
32. In school I am focused on demonstrating my intellectual ability.
33. One of my important goals is to validate my intelligence through my schoolwork.

(Growth Mindset)

34. I strive to constantly learn and improve in my courses.
35. In school I am always seeking opportunities to develop new skills and acquire new knowledge.
36. In my classes I focus on developing my abilities and acquiring new ones.
37. I seek out courses that I will find challenging.
38. I really enjoy facing challenges, and I seek out opportunities to do so in my courses.
39. It is very important to me to feel that my coursework offers me real challenges.

Appendix G

Satisfaction with College Environment

Please use the following scale to rate your satisfaction with the college you entered as a freshman on each of the aspects of campus life listed below:

1	2	3	4	5	6	7
Very Dissatisfied			Neutral			Very Satisfied

(Relationships with Faculty)
40. Amount of contact with faculty and administrators
41. Overall relationship with faculty and administrators
42. Opportunities to discuss course work and assignments out of class with professors

(Curriculum and Instruction)
43. Humanities courses
44. Social science courses
45. Overall quality of instruction
46. General education requirements
47. Relevance of course work to everyday life
48. Courses in your major field
49. Opportunities to take interdisciplinary courses

(Student Life)
50. Campus social life
51. On-campus opportunities to attend films, concerts, and so on
52. Opportunities to participate in extracurricular activities
53. Regulations governing campus life

(Individual Support Services)
54. Career counseling and advising
55. Personal counseling
56. Academic advising
57. Job placement services for students
58. Tutoring help or other academic assistance

(Facilities)
59. Library facilities
60. Computer facilities
61. Laboratory facilities

(Overall)
62. Overall college experience

Appendix H

Interaction of Social Network and Mindset

To what extent do you agree with the following statements?:

63. I made several new friends in my first semester at college.

1	2	3	4	5	6	7
Strongly Disagree			Neutral			Strongly Agree

64. I spend time with friends I met at college outside of the classroom environment.

1	2	3	4	5	6	7
Strongly Disagree			Neutral			Strongly Agree

65. I still spend as much time with my old friends (before college) as I used to.

1	2	3	4	5	6	7
Strongly Disagree			Neutral			Strongly Agree

Appendix I

List of Hypotheses

Hypothesis 1: At-risk students would have smaller academic social networks than their advantaged peers.

Hypothesis 2: Comparative Fit – There would be a group difference with regard to how the students distinguished categorical differences between "Academic" and ethnicity, SES, and gender. At-risk students would not see a fit between the three ascribed categories and the academic category while advantaged students would see them as the same.

Hypothesis 3: Depersonalization – Participants would be more likely to take on the perceived characteristics of members in the ascribed categorical groups of ethnicity, SES, and gender compared to membership in an academic category.

Hypothesis 4: Accessibility – Accessibility to membership in ethnicity, SES, and gender would mediate membership in the academic category, such that when membership in the former categories was made salient, depersonalization for membership in the latter would decrease.

Hypothesis 5: Compared to advantaged students, the academic identity of at-risk students would have lower salience than ethnicity, SES, and gender.

Hypothesis 6: Compared to advantaged students, the commitment to academic identity of at-risk students would not be as high as the commitment to ethnicity, SES, and gender.

Hypothesis 7: At-risk students would be more likely to have an entity mindset than their advantaged counterparts.

Hypothesis 8: Academic social network, academic identity, and mindset would predict that at-risk students would not perform as well academically as advantaged students.

Hypothesis 9: At-risk students with a weak academic social network and a fixed mindset would be less likely to expand their social networks compared to their advantaged counterparts.

Hypothesis 10: The behavior of at-risk students would be affected by mindset such that at-risk students with a fixed mindset and a less salient academic identity would be motivated to change the situation of their academic environment.