The Role of Academic and Non-Academic Factors in Improving College Retention

ACT POLICY REPORT

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PREFACE

This study, *The Role of Academic and Non-Academic Factors in Improving College Retention*, reflects ACT's interest in analyzing the critical issues affecting persistence in college. It builds on extensive ACT research on retention that includes three national studies on retention practices, six national studies on academic advising (the latest published as a monograph by the National Academic Advising Association), and 20 years of data collection and reporting of college retention and degree completion rates through ACT's Institutional Data Questionnaire.

We are grateful for the assistance and support of the aforementioned individuals but accept sole responsibility for any errors of omission or commission.

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EXECUTIVE SUMMARY

Globalization, with its accompanying socioeconomic, demographic, and technological changes, is having a significant impact on America's workforce and its postsecondary institutions. Today, six out of every ten jobs require some postsecondary education and training.[1]

To remain competitive in the global economy, we must enable a greater percentage of our college-age population to enroll in postsecondary education and complete a degree in a timely fashion. Although we have made significant advances in our high school graduation rates, improvement still is needed in our college retention rates. For example, in 1999-2000, four-year college enrollment among Caucasians was 46%, for African Americans, 40%, and for Hispanics, 34%.[2] However, only 55% of all undergraduates who began their studies at a given four-year institution in 1995-96 with the goal of a bachelor's degree completed that degree within six years at that same institution (including 59% of Caucasians and 41% of both African Americans and Hispanics).[3] In the face of changing workforce and educational requirements, the need to retain more students will only intensify.

The issue is twofold: attracting students to postsecondary education and retaining them so that they succeed and graduate. This report focuses on the latter—the need to enhance retention rates so that more of our students are prepared for the challenges of a dynamic and ever-expanding workplace. It explores a range of information that can help administrators and policymakers design programs to enable our diverse population of students to successfully complete postsecondary education.

This policy report provides information from our major technical study about the influence of non-academic factors, alone and combined with academic factors, on student retention and performance at four-year colleges and universities. It highlights examples of successful retention strategies and stresses the need to evaluate the bases on which retention policies and programs are created. It concludes by offering recommendations to help administrators and policymakers consider both academic and non-academic factors in the design and implementation of retention efforts.

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[1] Carnevale, A., & Desrochers, D. (2003). *Standards for what? The economic roots of K-16 reform.* Princeton, NJ: Educational Testing Service.

[2] Harvey, W. B. (2003). *Minorities in higher education: 2002-2003 annual status report.* Washington, DC: American Council on Education.

[3] 63% of students from this cohort who began at a four-year institution with the goal of a bachelor's degree completed that degree within six years at either their initial institution or at another institution (including 67% of Caucasians, 46% of African Americans, and 47% of Hispanics). U.S. Department of Education. (2002). *Descriptive summary of 1995-96 beginning postsecondary students: Six years later.* Washington, DC: U.S. Department of Education, National Center of Educational Statistics.

Our findings indicate that the non-academic factors of academic-related skills, academic self-confidence, academic goals, institutional commitment, social support, certain contextual influences (institutional selectivity and financial support), and social involvement all had a positive relationship to retention. The academic factors of high school grade point average (HSGPA) and ACT Assessment scores, and socioeconomic status (SES) had a positive relationship to college retention, the strongest being HSGPA, followed by SES and ACT Assessment scores. The overall relationship to college retention was strongest when SES, HSGPA, and ACT Assessment scores were combined with institutional commitment, academic goals, social support, academic self-confidence, and social involvement.

In terms of performance, the findings indicate that of the non-academic factors, academic self-confidence and achievement motivation had the strongest relationship to college GPA. Of the academic factors, both HSGPA and ACT Assessment scores had a stronger relationship to GPA than did SES, the strongest being HSGPA followed by ACT Assessment scores and SES. The overall relationship to college performance was strongest when ACT Assessment scores, HSGPA, and SES were combined with academic self-confidence and achievement motivation.

Our findings have significant implications for designing effective retention programs. Although many programs rely on traditional academic factors to identify students at risk of dropping out, our findings suggest that this approach may be limited and may miss students who are at risk due to other, non-academic factors. Students who master course content but fail to develop adequate academic self-confidence, academic goals, institutional commitment, and social support and involvement may still be at risk of dropping out.

At the same time, of course, postsecondary institutions cannot and should not ignore the principal contribution that the academic factors make toward improvements in college retention and performance. Among the best precollege indicators of first-year college GPA is performance on standardized achievement tests (ACT Assessment) and high school GPA; and these indicators are readily available and easy to use.

Given the results of our study and review of relevant retention research, we recommend that colleges and universities:

1. *Determine their student characteristics and needs, set priorities among these areas of need, identify available resources, evaluate a variety of successful programs, and implement a formal, comprehensive retention program that best meets their institutional needs.*

2. *Take an integrated approach in their retention efforts that incorporates both academic and non-academic factors into the design and development of programs to create a socially inclusive and supportive academic environment that addresses the social, emotional, and academic needs of students.*

3. *Implement an early alert, assessment, and monitoring system based on HSGPA, ACT Assessment scores, course placement tests, first semester college GPA, socioeconomic information, attendance records, and non-academic information derived from formal college surveys and college student inventories to identify and build comprehensive profiles of students at risk of dropping out.*

4. *Determine the economic impact of their college retention programs and their time to degree completion rates through a cost-benefit analysis of student dropout, persistence, assessment procedures, and intervention strategies to enable informed decision-making with respect to types of interventions required—academic and non-academic, including remediation and financial support.*

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INTRODUCTION

Globalization, with its accompanying socioeconomic, demographic, and technological changes, is having a significant impact on America's workforce and its postsecondary institutions. To continue to successfully compete in the global economy, the United States will need an even more highly educated and skilled workforce than now exists, one that can adapt to the needs of a rapidly changing and more technically demanding work environment. Today, six out of every ten jobs require some postsecondary education and training (Carnevale & Desrochers, 2003). By 2012, the number of jobs requiring advanced skills will grow at twice the rate of those requiring only basic skills (U.S. Department of Labor, 2000; Hecker, 2004). To maintain the nation's competitive economic edge, our workforce must have education and training beyond high school, and postsecondary institutions must attract and retain a growing number of students.

The demographic makeup of our country is also changing at a rapid pace. Hispanics are now the largest and fastest-growing minority population, constituting over 50% of all foreign-born Americans and 13% of the total United States population. And African Americans now also represent 13% of our population (U.S. Census Bureau, 2001). Projections indicate that within 30 years, Hispanics and African Americans will constitute over one-third of the American population (U.S. Census Bureau, 2002). Given these economic and demographic changes, more and more students, especially those from minority backgrounds, will need to be college educated if we are to maintain and advance our labor force.

As a country, America is more educated than ever. Yet, while high school graduation rates have increased, a high school diploma is no longer sufficient to secure employment in today's knowledge-based economy. Because economic opportunity in the United States is increasingly based on postsecondary education, those who lack a college degree can face tremendous barriers to employment and success throughout their lives. In 2003, the average national unemployment rate for those 20-24 years of age at all education levels was 10%. Those with a bachelor's degree had an average unemployment rate of 6% while those with a high school diploma or less had an average unemployment rate of 14%.[1]

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[1] These unpublished tabulations were derived from data in the *Current Population Survey* 2003 annual averages and provided by Steve Hipple, Economist with the U.S. Department of Labor, Bureau of Labor Statistics, Office of Current Employment Analysis.

Unemployment for African Americans and Hispanics is highest for those with a high school diploma or less, while racial differences in unemployment are statistically insignificant among all people holding bachelors' degrees. In 2000, among those age 25 years old and over with a bachelor's degree, the median annual income was over 60% greater than the median income of those with a high school diploma (U.S. Department of Education, 2001). Over a lifetime, the gap in earnings between those with a high school diploma and those with a bachelor's degree or higher exceeds one million dollars (U.S. Department of Education, 2003).

Postsecondary education is the key to a stronger workforce for our nation and a better quality of life for our citizens. Better educated people clearly have a greater chance of obtaining secure jobs that provide opportunities for advancement, pay higher wages, and offer greater health and retirement benefits than do those who are less educated (Barfield & Beaulieu, 1999).

Although access to and participation in postsecondary education have increased, African Americans and Hispanics are less likely to attend and complete college than are Caucasian students. For example, in 1999-2000, four-year college enrollment among Caucasians was 46%, for African Americans, 40%, and for Hispanics, 34% (Harvey, 2003). However, only 55% of all undergraduates who began their studies at a given four-year institution in 1995-96 with the goal of a bachelor's degree completed that degree within six years at that same institution (including 59% of Caucasians and 41% of both African Americans and Hispanics) (U.S. Department of Education, 2002).[2] While getting students into college is important, retaining and helping them complete their degree work in no more than five or six years is just as vital to the economic and social health of the nation (Education Commission of the States, 2004).

To remain competitive in the global economy, we must enable a greater percentage of our college-age population to enroll in postsecondary education and complete a degree in a timely fashion. Although we have made significant advances in high school graduation rates, improvement still is needed in our college retention rates. In the face of changing workforce and educational requirements, the need to retain more students will only intensify. Low retention rates waste human talent and resources, jeopardize our nation's economic future, and threaten the economic viability of our postsecondary institutions and our country's democratic traditions.

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[2] 63% of students from this cohort who began at a four-year institution with a goal of a bachelor's degree completed that degree within six years at either their initial institution or at another institution (including 67% of Caucasians, 46% of African Americans, and 47% of Hispanics).

Given both workforce projections and rapidly changing demographics, our nation must continuously strive to increase the number of well-prepared college-educated students, especially minorities, who enter the labor force over the next few decades. Designing programs and policies that help students to prepare for and successfully complete postsecondary education is vital if our country is to remain a world economic leader.

The issue is twofold: attracting students to postsecondary education and retaining them so that they succeed and graduate. This report focuses on the latter—the need to enhance retention rates so that more of our students are prepared for the challenges of a dynamic and ever-expanding workplace. It explores a range of information that can help administrators and policymakers design programs to enable our diverse population of students to successfully complete postsecondary education.

Although colleges and universities strive to develop well-planned, comprehensive, and tailored retention programs, retention is dynamic and involves a complex interplay between academic and non-academic factors. Thus, to ensure student persistence and success, retention programs should address both academic and non-academic factors. This policy report provides information from our major technical study about the influence of non-academic factors, alone and combined with academic factors, on student retention and performance at four-year colleges and universities. It highlights examples of successful retention strategies and stresses the need to evaluate the bases on which retention policies and programs are created. It concludes by offering recommendations to help administrators and policymakers consider both academic and non-academic factors in the design and implementation of retention efforts.

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THE ACT STUDY

We recently completed a major technical report on student retention[3] that examined how non-academic factors, both alone and together with academic factors, influenced a student's decision to stay in or leave college (Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004). This policy report examines the results of our technical study and discusses its implications for improving postsecondary retention programs.

Accurate and comprehensive information about students, their needs, and the factors that affect retention forms the basis of a successful retention program. Retention is typically associated with traditional measures of college readiness, such as high school grade point average (HSGPA), courses completed, rigor of the high school curriculum, and college admissions tests (e.g., the ACT Assessment) (ACT, 1997; Adelman, 1999; Kern, Fagley, & Miller, 1998; Robbins, Davenport, Anderson, Kliewer, Ingram, & Smith, 2003; Tinto, 1997). Once a student is in college, retention is also influenced by GPA (Cabrera, Nora, & Castaneda, 1993; Mangold, Bean, Adams, Schwab, & Lynch, 2003; O'Brien & Shedd, 2001). Ishitani and DesJardins (2002), for example, found that the higher a student's first-year GPA, the less likely that student was to drop out of college.

Non-academic factors, typically assessed once the student is enrolled, can also affect retention (Braxton, 2000; Braxton & McClendon, 2002; Kennedy, Sheckley, & Kehrhahn, 2000; Mangold et al., 2003; O'Brien & Shedd, 2001; Wyckoff, 1998). Among these factors, for example, are: level of commitment to obtaining a degree, level of academic self-confidence, academic skills (time management skills, study skills, study habits), and level of academic and social integration into the institution.

The purpose of our study was to identify which academic and non-academic factors had the greatest effect on college retention and performance (GPA).[4] Information from our study can provide the tools postsecondary institutions need to identify students at risk of dropping out and to help them determine the specific types of retention programs that should be implemented to improve retention.

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[3] Retention is the length of time a student remains enrolled at the first institution toward completion of a degree.

[4] The relationship of the factors and combinations of factors to retention and performance (GPA) were measured and quantified using a multiple, step-wise regression analysis.

Identifying Academic and Non-Academic Factors

We conducted a comprehensive review of research on the topic of postsecondary retention (Robbins et al., 2004). More than 400 studies were identified, and 109 met the criteria for inclusion in this study. Those studies selected:

- Examined the relationship between non-academic and academic factors and postsecondary retention.

- Focused on full-time students enrolled in four-year U.S. postsecondary institutions.

- Used standardized measures and reported all of the pertinent study information.

We used a meta-analysis[5] technique to identify which non-academic factors had the most salient relationship to postsecondary retention. We also identified the extent to which each factor predicted postsecondary retention. This procedure allowed the identification of those factors that were the best indicators of the risk for postsecondary dropout. We also identified the relative contributions of the more traditional academic predictors of college retention including socioeconomic status (SES), high school GPA, and postsecondary readiness scores (ACT Assessment scores).[6] Once identified, the salient non-academic factors, together with the more traditional academic factors, were examined to see which were the best indicators of risk for dropping out.

Results

Nine broad categories of non-academic factors were constructed to both structure the analysis and report the findings (Table 1). The academic factors used in the analysis were HSGPA and ACT Assessment scores (Table 1). Colleges typically use HSGPA and ACT Assessment scores in their admissions process. This information is also used to identify students' academic strengths and weaknesses for accurate placement purposes and to help students decide on appropriate programs of study.

Socioeconomic status was also analyzed because it has been shown to be a potential influence on college retention and performance (Table 1) (Hossler & Vesper, 1993; Pathways to College Network, 2004; Stage, 1988). SES provides additional student information that includes parents' educational attainment and family income. Knowing financial status helps institutions determine whether a student needs to work in addition to receiving financial aid. Students having financial problems who need to work may be at a greater risk of dropping out of college than those who are more financially secure. For example, Ishitani and DesJardins (2002) found that students who receive financial aid generally have lower dropout rates than non-aided students.

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[5] Meta-analysis is a technique that combines statistical findings from many research studies and therefore produces information that has broader applicability than individual study findings.

[6] Although research has shown that race and gender influence the relationship between the academic and non-academic factors and postsecondary retention, relatively few studies on race and gender satisfied the criteria for inclusion in this study.

Table 1
Non-Academic and Academic Factors

Non-Academic Factors	Description
Academic goals	Level of commitment to obtain a college degree.
Achievement motivation	Level of motivation to achieve success.
Academic self-confidence	Level of academic self-confidence (of being successful in the academic environment).
Academic-related skills	Time management skills, study skills, and study habits (taking notes, meeting deadlines, using information resources).
Contextual influences	The extent to which students receive financial aid, institution size and selectivity.
General self-concept	Level of self-confidence and self-esteem.
Institutional commitment	Level of confidence in and satisfaction with institutional choice.
Social support	Level of social support a student feels that the institution provides.
Social involvement	Extent to which a student feels connected to the college environment, peers, faculty, and others in college, and is involved in campus activities.
Academic Factors	
ACT Assessment score	College preparedness measure in English, mathematics, reading, and science.
High school grade point average (HSGPA)	Cumulative grade point average student earned from all high school courses.
Other Factor	
Socioeconomic status (SES)	Parents' educational attainment and family income.

Our findings indicate that the non-academic factors of academic-related skills, academic self-confidence, academic goals, institutional commitment, social support, certain contextual influences (institutional selectivity and financial support), and social involvement all had a positive relationship to retention (Table 2). The strongest[7] factors were academic-related skills, academic self-confidence, and academic goals. Institutional commitment, social support, the contextual influences of institutional selectivity and financial support, and social involvement had a moderate relationship. Achievement motivation and general self-concept had a weak relationship. The contextual influence of institutional size had no relationship to college retention.

Table 2

Strength of Relationships of Individual Academic and Non-Academic Factors with College Retention

Academic Factors	Practical Strength	Numeric Value[8]
HSGPA	Moderate	.246
ACT Assessment scores	Moderate	.124
Non-Academic Factors		
Academic-related skills	Strong	.366
Academic self-confidence	Strong	.359
Academic goals	Strong	.340
Institutional commitment	Moderate	.262
Social support	Moderate	.257
Contextual influences (Institutional selectivity)	Moderate	.238
Social involvement	Moderate	.216
Contextual influences (Financial support)	Moderate	.188
Achievement motivation	Weak	.066
General self-concept	Weak	.050
Other Factor		
SES	Moderate	.228

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[7] The strength of the relationship refers to the usefulness of these factors in predicting college retention or performance.

[8] Numeric value: Population estimates of correlation. Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychological and study skill factors predict college outcomes? A meta-analysis. *Psychological Bulletin, 130*(2), 261-288.

The academic factors of HSGPA and ACT Assessment scores, and SES had a positive relationship to college retention, the strongest being HSGPA, followed by SES and ACT Assessment scores. The overall relationship to college retention was strongest when SES, HSGPA, and ACT Assessment scores were combined with institutional commitment, academic goals, social support, academic self-confidence, and social involvement (Table 3).

Table 3
Strength of Relationship of the Combination of Academic and Non-Academic Factors with College Retention

Combination of Academic and Non-Academic Factors	Strength of Relationship to College and Retention
SES, HSGPA, and ACT Assessment scores combined with institutional commitment, academic goals, social support, academic self-confidence, and social involvement.	Strongest. This combination of factors explains 17% of the variability of college retention across students.

In terms of performance, the findings indicate that of the non-academic factors, academic self-confidence and achievement motivation had the strongest relationship to college GPA. The contextual influence of financial support, academic goals, academic-related skills, social involvement, institutional commitment, and social support had a moderate relationship to GPA, while general self-concept had a weak relationship. Of the contextual influences, neither institutional size nor selectivity had a relationship to GPA. Of the academic factors, both HSGPA and ACT Assessment scores had a stronger relationship to GPA than did SES, the strongest being HSGPA followed by ACT Assessment scores and SES (Table 4). The overall relationship to college performance was strongest when ACT Assessment scores, HSGPA, and SES were combined with academic self-confidence and achievement motivation (Table 5).

Table 4

Strength of Relationships of Individual Academic and Non-Academic Factors with College GPA

Academic Factors	Practical Strength	Numeric Value
HSGPA	Strong	.448
ACT Assessment scores	Strong	.388
Non-Academic Factors		
Academic self-confidence	Strong	.496
Achievement motivation	Strong	.303
Contextual influences (Financial support)	Moderate	.201
Academic goals	Moderate	.179
Academic-related skills	Moderate	.159
Social involvement	Moderate	.141
Institutional commitment	Moderate	.120
Social support	Moderate	.109
General self-concept	Weak	.046
Other Factor		
SES	Moderate	.155

Table 5

Strength of Relationship of the Combination of Academic and Non-Academic Factors with College GPA

Combination of Academic and Non-Academic Factors	Strength of Relationship to College GPA
ACT Assessment scores, HSGPA, and SES combined with academic self-confidence and achievement motivation.	Strongest. This combination of factors explains 26% of the variability of college GPA across students.

Conclusions

Our study clearly illustrates that retention and performance are two very different college outcome processes. We explain how the relationship of various academic and non-academic factors to each of these two outcomes changes depending on the outcome. For example, HSGPA and academic-related skills and goals have a stronger relationship to retention than to performance, and ACT Assessment scores and academic self-confidence and achievement motivation have a stronger relationship to performance than to retention. These findings demonstrate how important it is to understand the different effects that academic and non-academic factors have on college retention and performance.

We believe that our results strongly support the use of both categories when trying to improve college success as we highlight the key role that both academic and non-academic factors together have in college retention and performance. Our results demonstrate that the overall relationship to each college outcome (i.e., retention and performance) was stronger when these factors were combined.

Our findings have significant implications for designing effective retention programs. Although many programs rely on traditional academic factors to identify students at risk of dropping out, our findings suggest that this approach may be limited and may miss students who are at risk due to other, non-academic factors. Furthermore, the findings suggest that retention programs that focus primarily on helping students master course content alone may only address immediate, rather than longer-term deficiencies. Students who master course content but fail to develop adequate academic self-confidence, academic goals, institutional commitment, achievement motivation, and social support and involvement may still be at risk of dropping out.

At the same time, of course, postsecondary institutions cannot and should not ignore the principal contribution that academic factors make toward improvements in college retention and performance. Among the best precollege indicators of first-year college GPA is performance on standardized achievement tests (ACT Assessment) and high school GPA; and these indicators are readily available and easy to use.

Our study highlights the need to reevaluate educational retention models such that they incorporate the use of both academic and non-academic factors. College retention and performance are two different processes affected by different factors and combinations of factors. Recognition of these differences and the factors that affect them are a step toward improvement in college retention and performance.
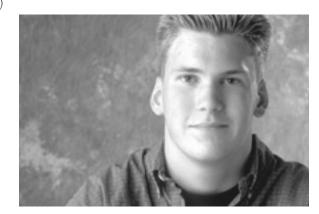
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RETENTION STRATEGIES

Consonant with our study, this section explores various successful strategies employed at four-year postsecondary institutions to improve college retention. Some focus on academic areas, such as providing tutorials; others on non-academic areas, such as developing social support groups to increase confidence and commitment. And, as supported by our study, some address combinations of academic and non-academic needs of students in an integrative manner, such as combining tutoring with faculty-mentors and peer support (Hurd, 2000; Ramirez, 1997; Tinto, 1997).

Before any retention effort can begin, postsecondary institutions must devise ways to identify students who need help and assess the kinds of help they need. The Pathways to College Network (2004) recommends development of methods to identify underprepared students early (precollege enrollment or within the first few weeks of the college year), to accelerate their learning and to monitor their progress over time.

Postsecondary institutions often use student background information, such as HSGPA, ACT Assessment scores, and SES as an early warning and alert system to identify students and design programs to meet particular needs. For example, first-year students entering college with low HSGPAs and/or low ACT scores can be directed into special programs that focus on improving their academic performance—such as skills workshops, academic tutorials, or engaging a tutor (Johnson, 2000).

Academic Factors

Retention programs that focus on improving academic performance are based on models such as Tinto's Theory of Student Departure (1975, 1993) and Bean's Student Attrition Model (1980, 1985). Tinto and Bean link college retention to both past and present academic performance (Cabrera, Castaneda, Nora, & Hengstler, 1992; Cabrera et al., 1993). Tinto, Bean, and others (Cabrera et al., 1992; Cabrera et al., 1993) hypothesize that college performance influences a student's decision to leave or stay in school.

Tinto believes that precollege education interacts with and directly influences a student's initial commitment to the institution and to its academic goals. A student's initial level of commitment is thought to affect how integrated he or she becomes into the social and academic life of the institution. This level of integration directly affects the decision to remain in college or depart.

Tinto also believes that social interaction has a positive effect on grade performance when students establish friendships with persons who have strong academic orientations. Furthermore, a student's initial level of goal commitment is thought to influence academic integration, which in turn affects subsequent goal commitment. Tinto explains that a higher degree of integration into the social and academic environments contributes to a greater degree of institutional and goal commitment and therefore to lower dropout and higher completion rates.

These findings support our study results that suggest that HSGPA and institutional commitment are related to college retention and that HSGPA and ACT Assessment scores are related to college performance.

Academically focused retention programs are based on the assumption that a student's academic competence in such areas as reading, writing, and mathematics is related to retention. Therefore, the higher a student's academic competence, the better the performance and the greater the likelihood of staying in school (Adelman, 1999; Bean, 1980, 1983, 1985; Fletcher, 1998; Ishitani & DesJardins, 2002; Tinto, 1975, 1997).

Postsecondary institutions, then, often focus attention on methods that improve first-year GPA as a way to motivate students to perform better academically and increase their likelihood of staying in college. These methods are based on the premise that an improved GPA will decrease the likelihood of dropping out. A recent longitudinal study by Ishitani and DesJardins (2002) supports this belief. They found that the higher a student's first-year GPA, the less likely that student was to drop out of college. Using results from assessments (e.g., in-class subject exams), essays, seminar presentations, and class participation, monitoring student performance, and observing attendance patterns can help institutions identify those students who may not be performing at acceptable levels and recommend intervention strategies.

One such widely applied, academically focused program is Supplemental Instruction (SI). SI is a unique form of academic assistance designed to help students in historically difficult college courses to master course content while they develop and integrate effective learning and study strategies applicable to that course. SI targets first- and second-year high-risk courses, rather than high-risk students (Ramirez, 1997). Studies indicate that across institutional types, disciplines, precollege student preparation levels, and ethnic groups, SI participants consistently outperform their peers who attempt the same courses on their own (Congos & Schoeps, 2003; Hensen & Shelley, 2003; Ogden, Thompson, & Russell, 2003; Ramirez, 1997).

SI focuses on both process and content. SI sessions are structured to maximize active student involvement with the course material. Learning and study strategies, such as note-taking, graphic organization, questioning techniques, vocabulary acquisition, and test prediction and preparation are integrated into the course content. Students learn to verbalize what they do understand and clarify what they do not understand. The SI leader is a model student who provides an example of how successful students think about and process the course content. The leader facilitates study sessions, but does not re-lecture or introduce new material. Although the SI leader guides students in using their own notes and reading materials to help clarify course concepts, students assume responsibility for the structure by creating informal quizzes and note cards, brainstorming, designing problem-solving activities, or predicting test questions.

Non-Academic Factors

As our study shows, college retention and performance are also influenced by non-academic factors, such as academic self-confidence, achievement motivation, institutional commitment, and social support. Contemporary motivational theories have emerged as strong explanatory models of academic achievement and other performance behavior (Robbins et al., 2003). Results of several reviews of the motivational literature (Covington, 2000; Dweck, 1999; Eccles & Wigfield, 2002) highlight the need to integrate non-academic and academic models.

To accurately identify students for retention programs, colleges and universities need information on the non-academic factors that relate to college retention and performance (Gore, Leuwerke, & Turley, in press; Schnell & Doetkott, 2003; Solberg, Gusavac, Hamann, Felch, Johnson, Lamborn, & Torres, 1998; Ting, 1997; Tracey & Sedlacek, 1984, 1989). For example, findings from our study link a student's levels of academic self-confidence, goal and institutional commitment, social support and involvement, and motivation to college retention and/or performance. It follows that information on these factors can enable postsecondary institutions to identify potential students for retention programs and the areas in need of attention.

Postsecondary institutions often use formal college surveys, such as Your First College Year Survey questionnaire, or first-year college experience orientation programs, or student profiles (ACT Assessment Student Profile Section), and inventories to identify several of these factors (Barefoot, Fidler, Gardner, Moore, & Roberts, 1999; Colton, Connor, Shultz, & Easter, 1999; Martin, 1998; Noel, Levitz, & Saluri, 1985; Schnell & Doetkott, 2003; Ting, 1997; Tracey & Sedlacek, 1984). Once identified, students can be directed into specific retention programs that focus on improving these factors. For example, to help build academic self-confidence and motivation, students may receive academic counseling and advising. To increase levels of social support and involvement, they may be encouraged to participate in social support groups, such as campus big brothers or big sisters and student organizations (Braxton & McClendon, 2002; Kennedy et al., 2000; Mangold et al., 2003; Padgett & Reid, 2003).

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Orientation programs can play a pivotal role in students' transitions from high school or work into college (Braxton, Hirschy, & McClendon, 2004; Colton et al., 1999, Fidler, 1991; Tinto, 1993). They address students' preparedness, their identification, and connections to the academic and social cultures of the institution, and their academic goals and aspirations (Fidler, 1991; Tinto, 1993). According to Holmes, Ebbers, Robinson, and Mugenda (2000), orientation programs can help reinforce to students that they matter to the institution and will be supported as they proceed toward completion of their degrees. This validation connects the student to the institution and helps build institutional and goal commitment as well as social support networks. Holmes et al. suggest that components of the orientation program should introduce students to faculty, staff, other students, extracurricular opportunities, campus-wide grading policies, library services, career planning services (to assist them in identifying appropriate degree options), and academic support services.

In an interview with Fidler, Swanson (2003) found that increasingly more colleges and universities are focusing on the first-year as a time to effectively address retention issues (Colton et al., 1999; Schnell, Seashore Louis, & Doetkott, 2003). Tinto (1993) believes that first-year programming has significant impact on academic achievement, academic persistence, and graduation for its participants. The Pathways to College Network (2004) recommends that postsecondary institutions focus on first-year students by providing comprehensive services, such as integrating academic support with teaching and learning, a strategy that may include tutoring and study skills instruction together with social activities and personal counseling.

In a longitudinal study examining the effects of a first-year seminar program on graduation rates, Schnell et al. (2003) found that first-year students who participated in the seminar graduated at a higher rate than the matched group of students who did not. They also found that among those participants who were admitted to postsecondary institutions with low ACT Assessment scores and HSGPAs, graduation rates were also better than those of matched non-participants. These results suggest that a student's entering characteristics play an important role in persistence to graduation, but potential for success can be increased with the addition of a first-year program. Such a program might include a first-year seminar that focuses on learning skills and techniques used by successful college students, including time management, test taking, note taking, and stress management. Their findings also support our study results that link precollege academic performance (HSGPA), ACT Assessment scores, and non-academic factors (e.g., academic-related skills, self-confidence, academic goals, commitment, and social support) to retention.

Combining Academic and Non-Academic Factors

Findings from our study suggest that retention programs can be improved if they integrate both academic and non-academic factors. For example, the majority of non-academic and both of the academic factors (HSGPA, ACT Assessment scores), plus SES, are related to college retention. However, the strongest relationship to retention occurs when all of the academic and the key non-academic factors are combined. It follows that institutions might want to consider these factors collectively and in an integrative fashion as they develop student retention programs.

As academic and social integration increases, so does the likelihood of student persistence (Asera, 1998; O'Brien & Shedd, 2001; Tucker, 1999). Nora (1993) defines academic integration as the development of a strong affiliation with the college academic environment both in and out of class. It may be developed both through learning-centered interaction with faculty, academic peers and staff, and through informal social contact with faculty and involvement in student organizations (Braxton & McClendon, 2002). Studies by the Pathways to College Network (2004) recommend the integration of academic support with teaching and learning, which can include tutoring and study-skills instruction. Learning-centered interactions focus on improving both the academic factors and non-academic factors that relate to college retention and performance, such as improving academic competence as well as increasing levels of academic self-confidence and motivation.

Despite poor academic performance, many students persist because of their successful social integration and feelings of fit with their institution (Kennedy et al., 2000). Studies suggest that activities or programs that bring together students facilitate the development of social and learning communities and foster a shared consensus regarding institutional goals that promote persistence (Mangold et al., 2003). Courses and programs that build mentoring and support groups into their designs help improve levels of student involvement, motivation, and academic self-confidence and, in turn, increase levels of institutional commitment and engagement (Mangold et al., 2003; Padgett & Reid, 2003). Such findings serve as the basis of many efforts to improve retention, such as faculty-student mentoring, peer tutoring, academic counseling, and advising programs (Chenoweth, 1999; Roach, 1997, 1999; Rodriguez, 1997).

One of the primary factors affecting college retention is the quality of interaction a student has with a concerned person on campus (Habley, 2004). Academic advising is one of the few ways in which a college can formally implement this type of interaction. A recent survey of college officials conducted by ACT, in cooperation with the National Academic Advising Association (NACADA), suggests that many postsecondary institutions are underutilizing and poorly administering their academic advising programs (Habley, 2004). Specifically, survey results indicate that many colleges failed to capitalize on the benefits of quality advising, particularly, when it came to helping students stay in school. Few colleges had a formal, structured program in place to effectively promote advising as a way to increase retention.

Along with structured academic advising programs, retention efforts can also involve the implementation of special registration strategies that combine both an academic and non-academic focus. For example, with block registration, students enroll in the same courses and attend classes as a cohort. This special type of registration is based on the belief that by attending classes together, students will be more likely to form peer networks. Universities initiate a first-year student block registration and mentoring program to strengthen social support and integration into the academic community, a strategy that can lead to higher rates of persistence (Mangold et al., 2003).

In many of these programs, mentors are recruited from several departments and attend preprogram workshops that address problems and offer possible solutions for many social and personal challenges that new first-year students experience, such as alcohol and drug abuse, sexual freedom, loneliness, depression, and management of finances. Mentors can also provide students with informal social outings, such as attending institutional gatherings, lectures, shows, and athletic events. In addition, the mentors work with the students on academic-related skills and resources that can include the use of the library and the computer system.

Special Populations

As students become more integrated into the academic and social fabric of the campus community, their levels of commitment, academic self-confidence, and motivation increase. This in turn influences their levels of persistence. Social integration is especially important for students who are first-generation college attendees, have limited English proficiency, or are from a cultural or minority background. Many of the retention programs aimed specifically at minority and female students use a combination of academic and non-academic retention strategies. Studies suggest that faculty-student and peer-interaction programs such as mentoring, counseling, and advising have had

positive effects on retention of minority and female students, especially when faculty are representative of these special populations (Flowers, 1998; Good, Halpin, & Halpin, 2002; Huffman, 2001; Hurte, 2002; Landry, 2002; Mangold et al., 2003; Roach, 1997, 1999; Rodriguez, 1997). Students need to see themselves reflected in the academic environment around them—in the faculty, staff, and faces of their peers—to avoid feelings of marginality that can undermine success (Tatum, 1997, 2004).

Several universities assign first-year students to a big brother or big sister, such as an upper-classman or a faculty member who provides academic support, peer tutoring, and instruction in study techniques. Studies indicate that these informal and formal interactions have a positive influence on student commitment and increase levels of persistence (Wyckoff, 1998). Wyckoff believes that faculty can serve as socializing agents and that interactions outside of the classroom exert a direct influence on students' development and competence and, therefore, influence the intent to remain in college. Such interactions can lead to greater institutional commitment and increased social and academic integration.

Studies suggest that retention of special populations may improve if faculty express their sincere belief that all students are capable of learning and can be taught to learn (Flowers 1998; Good et al., 2002; Rendon, 1992). Acknowledging students and creating an environment of respect is something educators can control. This behavior can possibly motivate students enough to remain enrolled in college. Creating a classroom environment that enhances gender and racial diversity allows particular groups of students to feel comfortable and supported within the classroom and the college.

In her studies on retention at Historically Black Colleges and Universities, Chenoweth (1999) examined the positive effects that faculty and student interaction had on student persistence. These schools recruit faculty members to be advisors who meet with first-year students on academic probation, socialize with them, and help them address issues of organization. Faculty members counsel and monitor students, and meet weekly to review grades and gain feedback on student progress. They may advise those not performing well to seek further academic and non-academic assistance, such as tutorials or counseling.

Multicultural centers can provide minority students with a place to meet, retain pride in culture, and share common interests while they receive academic support through counseling, tutoring, and mentoring (Collinson, 1999; Rinn, 1995; Rodriguez, 1997). Through such centers, postsecondary institutions can provide academic and social activities and personal counseling that affirm the cultural, linguistic, and social backgrounds of minority students (Pathways to College Network, 2004). These centers are an important way for students to connect and gain social support through interaction with staff who act as mentors and with other students with whom they share a sense of identity (Landry, 2002).

Gloria and Robinson-Kurpius (2001) found that for American Indian undergraduates, interventions that increase their social support, level of comfort in the university environment, and self-confidence were associated with an increase in their decisions to stay in college. Studies by Fries-Britt and Turner (2001, 2002) illustrate the importance among African American students on predominantly Caucasian campuses to feel socially supported and integrated into their institution. Ting and Robinson (1998) found that for Caucasian women, social involvement enhanced their academic performance. A study by Sedlacek and Adams-Gaston (1992) revealed that the academic success of student athletes was strongly influenced by their levels of social support and self-confidence.

Specific colleges within the larger university community can also undertake retention efforts. For example, they can initiate special programs aimed at specific populations of students, such as minority engineering students or other underrepresented populations in a given discipline, to meet both their academic and non-academic needs (Good et al., 2002). Universities can design programs comprised of different components, such as tutorials held informally, critical thinking workshops, and interactive learning laboratories. Students can be paired with a faculty member or upper-classman who acts as a mentor. In a study by Good et al. (2002), participants in one such program reported feeling a sense of connection to the engineering community while non-participants did not.

Universities with relatively large populations of specific student populations can implement special academic and retention programs aimed at increasing their academic and social integration into the university and improving their rates of retention (Belgarde & LoRe, 2003). These programs can provide a variety of services, such as computer assistance, research and library resources, academic advisement, financial information, lectures and symposia, social events, and centers that students can regard as homes away from home.

Another part of the social safety net for minority students is summer transition programs that provide remediation work and an introduction to college (Landry, 2002). Summer transition programs often require students to take a specific set of courses the summer before their first year and some universities require these students to live on campus in dorms where they regularly interact with staff and upper-classmen. Students get a sense of what is expected of them in college and develop friendship bonds that may continue throughout their college years (Rinn, 1995; Rodriguez, 1997).

The value of retention programs that combine academic and non-academic factors has been supported by the federal government through its College Completion Challenge Grants. These grants support the development of student services that introduce incoming first-year students to college life and provide remediation classes, peer tutoring, and mentoring by faculty or upper-class students, activities to secure financial assistance, assistance with course selection, and cultural activities (Dervarics & Roach, 2000). They are aimed primarily at postsecondary institutions to serve high-risk, minority, first-generation, and low-income students.

Summary

To increase the likelihood of staying in school, academically focused programs aim at improving a student's academic performance. Non-academic factors such as academic self-confidence, achievement motivation, goal and institutional commitment, and social support and involvement also influence college outcomes and are often the principal components of college retention programs. Institutions often use previous and current achievement measures to identify students early who may be at risk of dropping out. To identify non-academic factors, colleges and universities rely on formal college surveys, student inventories and profiles such as the ACT Assessment Student Profile Section.

Programs that focus on improving non-academic areas include orientation programs, first-year seminars, social support groups, and student organizations. Academically focused programs such as Supplemental Instruction are designed to help students master course content while they develop and integrate effective learning and study strategies applicable to a particular course. Integrated retention programs are based on information derived from both academic and non-academic sources and focus on enhancement in both areas. Student integration into the campus community increases the likelihood of improved academic performance through enhancement of a student's academic self-confidence, achievement motivation, academic-related skills, and goal and institutional commitment. This in turn positively influences a student's decision to remain in college.

It appears that much of the literature on special populations and college retention suggests that special populations may be affected differently depending on the factors considered. For example, social support and integration into predominantly Caucasian institutions is important for African American students while for American Indians it is social support and self-confidence.

This section explored various retention programs developed and implemented by postsecondary institutions. Some focus on improving a student's academic deficiencies while others on supporting non-academic needs. However, supported by our study, the most successful programs use strategies that improve both academic and non-academic areas in an integrative way.

4

RECOMMENDATIONS

The findings of our study have clear implications for policymakers, administrators, and educators as they try to understand, plan, and develop programs specifically aimed at improving college retention. Our results suggest that both academic and non-academic factors relate to college retention and performance. While certain factors within each category relate to retention and performance, the relationships are strongest when these factors are combined in specific ways. To be successful, then, retention efforts must address both academic and non-academic factors. Furthermore, no one intervention strategy is likely to meet the needs of all, since students have different reasons for leaving college and are likely to respond in different ways to institutional programs. In addition, institutions have their own unique set of characteristics, requiring them to design retention programs according to their specific needs and available resources.

This policy report recommends that educational administrators and policymakers take an integrative approach to design and develop programs and policies that address both the academic and non-academic factors that relate to college retention and performance, and that recognize differences among student populations. The most successful retention strategies often use an early alert, assessment, and monitoring system based on academic factors such as high school and/or college GPA, test scores (ACT Assessment, tests in college courses), and other performance indicators such as completed assignments and class attendance.

These programs integrate academic and non-academic factors as they focus on strengthening students' formal and informal contacts with the institution. They provide academic advising and workshops in study skills, time management, critical thinking, planning, assertiveness, library use, and cultural awareness. They aim to increase levels of academic competence and confidence, motivation, and goal and institutional commitment through the creation of socially supportive and inclusive academic environments.

Given the results of our study and review of relevant retention research, we recommend that colleges and universities:

1. Determine their student characteristics and needs, set priorities among these areas of need, identify available resources, evaluate a variety of successful programs, and implement a formal, comprehensive retention program that best meets their institutional needs.

Retention affects the entire campus community. All members of the college community need to be committed to the welfare of the student and have a stake in the success of policies and practices that reduce student departure (Braxton et al., 2004). Design, development, and implementation of a successful retention program entail identifying areas of need, evaluating resources and potential strategies, setting priorities, planning program execution, developing an effective ongoing evaluation process, disseminating evaluation results, and making program modifications as warranted (Karp & Logue, 2002; Pathways to College Network, 2004).

The steps in this process can include:

- Acknowledgment by the institution that improved retention is desirable.

- Assembling comprehensive information about students, derived from multiple sources including ACT student records as well as other institutional student records, surveys, questionnaires, etc., to determine the academic and non-academic needs of individual students.

- Assessing the availability of retention resources with respect to the needs to be addressed.

- Reviewing and evaluating the efficacy of potential retention programs.

- Putting areas of retention need in priority order (e.g., first-year orientation, summer transition programs, tutorials, skills-related workshops, mentoring).

- Planning program execution.

- Designing and implementing a retention program evaluation process.

- Implementing the program.

- Widely disseminating results from the program evaluation.

- Modifying the program as warranted.

The campus community must be involved in a coordinated, systemic, and comprehensive effort to develop and maintain retention programs that address both academic and non-academic factors in an integrated manner (Holmes et al., 2000; Pathways to College Network, 2004). Such an effort may start with the creation of a college-wide retention committee to oversee the retention efforts and be responsible for ongoing appraisal and maintenance (Karp & Logue, 2002). It would coordinate efforts and facilitate cross-divisional cooperation to enhance communication and accountability by ensuring that all appropriate areas of the campus community are involved in the retention effort. The committee would be responsible for early outreach and continuous evaluation of the effectiveness of their efforts and recommend changes as warranted.

2. ***Take an integrated approach in their retention efforts that incorporates both academic and non-academic factors into the design and development of programs to create a socially inclusive and supportive academic environment that addresses the social, emotional, and academic needs of students.***

Academic information, such as assessment results and GPA, enables postsecondary institutions to identify academic areas that may need special attention. The better a student's academic competence, the better the performance, and the greater the likelihood of retention. The non-academic component of any retention program must address a variety of social and personal issues. Mangold et al. (2003) suggest that activities or programs that bring together students to facilitate the development of social and learning communities and foster a shared consensus regarding institutional goals will promote persistence. Such approaches are the basis of mentoring, special advising programs, block registration, and orientation programs aimed at improving retention (Chenoweth, 1999; Roach, 1997; Rodriguez, 1997).

Studies indicate that first-year orientation programs are a promising retention strategy that integrates both academic and non-academic factors to create a socially inclusive and supportive environment that addresses students' academic and non-academic needs (Colton et al., 1999; Fidler, 1991; Tinto, 1993). Critical components of successful first-year orientation programs include academic advising, orientation, academic support systems, tutoring, learning assistance programs, first-year seminars, skills development programs, mentoring programs, and placement testing (Braxton et al., 2004; Colton et al., 1999; Schnell et al., 2003). These programs should provide opportunities for first-year students to interact with their peers and faculty through a variety of extracurricular activities, such as intramural athletics, ethno-cultural clubs, and cultural and social events (Braxton et al., 2004).

Social support is especially important to students who are away from home for the first time, are from an ethnic or minority background, have limited English proficiency, are first-generation college attendees, have low socioeconomic status, or face other obstacles that impede their ability to fit in socially (Pathways to College Network, 2004). Courses and programs that include mentoring and support groups can help improve levels of social involvement and academic self-confidence, which in turn can increase levels of institutional commitment and engagement (Mangold et al., 2003; Padgett & Reid, 2003).

Integrating academic and non-academic information enables colleges to design and implement courses and programs that address both types of needs. Such programs may include first-year orientation programs, academic advising and tutorials, workshops in study skills, time management skills, critical thinking, planning, assertiveness training, library use, and cultural awareness. These programs should aim to increase levels of academic self-confidence, achievement motivation, goal and institutional commitment, and social involvement and support. These programs should strengthen ties between faculty and students and between students and their peers, through the creation of a socially inclusive and supportive academic environment.

3. *Implement an early alert, assessment, and monitoring system based on HSGPA, ACT Assessment scores, course placement tests, first semester college GPA, socioeconomic information, attendance records, and non-academic information derived from formal college surveys and college student inventories to identify and build comprehensive profiles of students at risk of dropping out.*

Colleges and universities can use various types of academic and non-academic information to develop and design their retention programs. Effective retention programs use assessment data to diagnose student needs, track progress, and ensure that all students are being reached (Pathways to College Network, 2004). For example, HSGPA and ACT Assessment scores and course placement tests help colleges and universities design and develop their admissions policies, orientation programs, student placement, and a variety of retention programs, such as academic advising, mentoring, and student personnel services (ACT, 2002). Non-academic information may be derived from formal college surveys such as Your First College Year Survey

questionnaire, first-year college experience orientation programs, and college student inventories and profiles, such as the ACT Assessment Student Profile Section.

Attendance records can also alert faculty and student support services staff to potential problems. Students who fail to come to class may be having academic, financial, or personal problems. By monitoring academic progress through assessments and attendance records, faculty may be able to address problems early in the academic year.

Academic and non-academic information enables colleges and universities to develop and maintain a comprehensive student profile that can serve as both a performance indicator and a way to identify potential dropouts. This information alerts institutions to students who may have potential difficulties and enables them to direct these students into retention programs before their risk of dropping out increases (Pathways to College Network, 2004).

Using the profile, institutions can develop programs tailor-made to meet the specific needs of students (Good et al., 2002) as well as monitor and improve the overall effectiveness of retention programs. To address potential problems earlier rather than later in the academic year, this profile should be continually updated and reviewed by first-year orientation and other retention program staff, and shared with individual students on a regular basis. At the end of the academic year, such a profile provides a comprehensive review of both the individual student's progress and the overall effectiveness of retention programs. It further allows staff to identify areas for improvement such as expanding the use of tutorials, mentoring programs, skills workshops, or social support services.

4. Determine the economic impact of their college retention programs and their time to degree completion rates through a cost-benefit analysis of student dropout, persistence, assessment procedures, and intervention strategies to enable informed decision-making with respect to types of interventions required—academic and non-academic, including remediation and financial support.

To make informed decisions, postsecondary institutions need to assess the costs of student dropout and time to degree completion with the benefits of improved student retention and graduation rates to determine the cost effectiveness of retention strategies, assessment procedures, and interventions—including remediation and financial support. Additionally, resource availability and allocation must be assessed with respect to the costs of program provision and the benefits accrued from improved college graduation rates. And as our study suggests, retention efforts must be collaborative and coordinated involving the entire academic community to ensure that student progress is actively monitored, resources are efficiently allocated, and programs are meeting their desired goals.

Colleges and universities have a responsibility to their students to ensure that these individuals receive the best quality education and educational experience possible. Unfortunately, statistics show that college retention rates, especially among minorities, need considerable improvement. Institutions that fail to maintain high graduation rates not only jeopardize

their reputations, but may do a long-term disservice to those students who drop out. Students who fail to earn a college degree are more likely to face economic hardships including longer periods of unemployment and fewer job opportunities. Clearly, quality of life expectations can be diminished with the failure to persist through to postsecondary completion.

When too many students are not completing their degrees, the nation as a whole has a smaller pool of qualified people able to meet the demands of a highly complex, technological work environment. By 2012, our national dependence on a highly educated labor force will only intensify as the pace of technological advancement quickens and the number of jobs requiring advanced skills doubles. Therefore, it is imperative that postsecondary institutions make concerted efforts to ensure that all students graduate; and effective retention programs are a primary means to that end.

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