

Summary of Empirically-Tested Theoretical Perspectives in the Literature on Community and Technical College Student Persistence/Success

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Introduction

SBCTC staff in support of the work of the Student Achievement Advisory Committee and System Task Force for Student Achievement Incentives conducted transcript based analysis of student persistence and success in the Washington community and technical college system. This paper summarizes three theoretical persistence/success constructs reviewed in preparation for that analysis. These three perspectives are attempts to explain the relationship between persistence/success and variables describing students or their behaviors or college actions.

Theoretical Perspectives on Persistence and Success

- **Academic momentum** – as students gain academic skills and knowledge needed to succeed in their studies, they gain momentum that propels them forward toward persistence/success. Behavioral measures identifiable in the transcript record (such as completing 30 college-level quarter credits) are connected to persistence/success.
- **Student engagement** – the connection between academic and social involvement/integration and student persistence/success. A controversy in this literature relates to whether the responsibility for integration lies with the student or the institution.
- **Student entry characteristics** – background characteristics such as first generation student or the need for remediation related to persistence/success.

This summary is focused on theories tested through national, meta-analysis or other large scale empirical research designed to examine the relationships predicted in each framework. This literature represents research on community and technical college students, however, most of the literature is focused on only a portion of all students. Some studies examined students who started college in their late 20s or later in life, but most of the literature examined persistence/success for students who began at a two-year college within a decade of high school graduation. Some of the research focused on adult basic education or ESL students regardless of age.

In this literature, persistence is typically defined in terms of students moving to the next level in their studies – such as moving through the levels in basic skills – or staying at college from term to term or year to year. Success is generally defined as completing certificates or degrees. Success in the student engagement research is also sometimes based on student reported learning gains or earning a high GPA.

A separate body of literature examines the effectiveness of the persistence/success strategies and practices that colleges employ. This “best practices” literature is reviewed elsewhere. Two key sources of “best practices” research are:

- Reviews, case studies and action frameworks developed by **Noel-Levitz** (<https://www.noellevitz.com/Papers+and+Research/Papers/Papers.htm>).
- **Paths to Persistence: An Analysis of Research on Program Effectiveness at Community Colleges** by Thomas R. Bailey and Mariana Alfonso, *Community College Research Center, Teachers College, Columbia University* Volume 6, Number 1, January 2005.
<http://www.luminafoundation.org/publications/PathstoPersistence.pdf>

Is there a reason for concern regarding student achievement? National studies of basic skills students have found that half drop out before the term ends (in less than 10 weeks) (Alamprese, 2005). In Washington and nationwide about 75 percent of high school graduates enroll in college within three years of graduation. Despite this high college-going rate, the rate at which students complete enough college to earn a certificate or degree is low. A recent national analysis of the high school class of 1992 (Adelman, 2004) found that by 8.5 years after high school:

- 4 out of 10 students who attended college did not complete a certificate, associate degree or higher;
- 1 out of 8 who had attended some college quit before or at the time they earned 15 quarter credits.

Academic Momentum – Looking at the College Transcript

Behaviors of students during high school and college are regarded as building, maintaining or losing “academic momentum” – the academic skills and knowledge needed to propel further achievement in studies. This perspective stems from decades of looking at observable (in the transcript) academic student behavior in terms of the courses taken, their intensity of enrollment (how many credits earned within a specified time frame) and continuity of enrollment from year-to-year. The chief data source is the student transcripts as collected for several large national longitudinal databases. The transcripts include those from students attending community and technical colleges, including those who delayed college going until their mid 20s. Cliff Adelman, veteran researcher formerly of the U.S. Department of Education, developed the academic momentum perspective based on the Department of Education staff review of the national databases.

Students who gain academic momentum have a higher likelihood of remaining in college or achieving a degree or certificate generally irrespective of background characteristics, and without regard to issues of social or academic integration. Strongly associated with persistence/success are increased credits completed, higher grades earned in the first year, and fewer withdrawn or repeated courses throughout enrollment – all transcript-based information. Among the chief findings are (Adelman, 1999, 2003, 2006):

- The academic momentum students bring forward **from high school** has a greater influence on degree completion than any other pre-collegiate or demographic factor. Additionally, momentum goes back even further than high school. If students do not

attain grade level proficiencies—particularly in math and reading—by the eighth grade, they are much less likely to acquire the needed skills in high school.

- Earning **credits in college-level math** in the first two years of college builds momentum.
- Failing to earn **30 quarter credits** in each year of college leads to a loss of momentum.
- Having **12 quarter credits through a dual enrollment program** (RS for example), which the research counts as before starting college, builds momentum.
- Students **entering college right after high school** rather than delaying enrollment more than a year, build momentum.
- Being **continuously enrolled** (that is not stopping out more than total of 2 quarters, exclusive of summer) builds momentum.
- A **rising trend in grades** builds momentum.
- Withdrawing or **repeating 20 percent** of courses loses momentum (cuts degree chances in half).

Note that these findings predominately relate to student behaviors in the first year of college. Analysis to date indicates that academic momentum gained in about the first year of college explains the bulk of the differences in student persistence and success (Adelman, 2006; Chen, 2005). When researchers first consider these behavioral measures, background characteristics such as race, ethnicity, and first generation college-going typically are found to account for little or none of the differences in student persistence/success.

Implications for Action: The empirical testing of this construct has been limited to students at the pre-college (remedial) and college-level only, and also limited to those who start college within a decade of last attending high school. For those students, the research suggests that colleges focus on increasing academic momentum building behaviors among students. The research also suggests that colleges should inform students about successful academic behaviors (getting through those “momentum points”). Colleges and systems should create institutional structures that reinforce academic behaviors that build academic momentum, and structures that preclude the behaviors that result in loss of momentum.

Student Engagement Literature

A large body of theory and research underlies the conclusion that there is a positive relationship between student engagement and student learning and persistence (Astin, 1985; Pace, 1984; Tinto, 1993; Pascarella & Terenzini, 2005). This perspective generally defines success as self-reported student learning or broadening of perspectives. Key concepts are:

- Student learning (success) is a function of a student’s level of academic and social involvement with the institutional environment;
- Institutions can influence the quality of effort students put into their involvement and thus their potential for success;
- The extent to which students share values and norms of other individuals in the institution impacts persistence in college.

Extensive research ties student engagement to student success when defined as self-reported student learning, higher GPAs or completion of degrees or certificates. While much of the empirical student engagement research has been conducted in baccalaureate institutions, a recent large scale study found that broad measures of student engagement are predictive of persistence and success at community and technical colleges (McClenney and Marti, 2006). The study found that that the Community College Survey of Student Engagement (CCSSE) benchmarks (see Appendix D in McClenney and Marti for definitions) “Active and Collaborative Learning”, “Student Effort” and “Support for Learning” were the most consistent predictors of first to second term and first to second year persistence. In regard to student success (self-reported learning gains) the CCSSE benchmarks “Active and Collaborative Learning”, and “Academic Challenge” were most predictive. GPA was found to be consistently related to higher levels of engagement in “Academic and Collaborative Learning”, “Student Effort” and “Academic Challenge.” Other academic gains were similarly related to the benchmarks that focus directly on coursework.

Given the ubiquity of the connection between “Academic and Collaborative Learning” to persistence/success it is helpful to look more closely at this construct. The Active and Collaborative Learning benchmark is composed of seven survey items each measured on a four item response scale (*Never, Sometimes, Often, Very Often*):

- Asked questions in class or contributed to class discussions;
- Made a class presentation;
- Worked with other students on projects during class;
- Worked with classmates outside of class to prepare class assignments;
- Tutored or taught other students (paid or voluntary);
- Participated in a community-based project as a part of a regular course;
- Discussed ideas from readings or classes with others outside of class (students, family members, co-workers, etc.).

The research in adult basic education also included this student engagement perspective, especially the active and collaborative learning perspective which has been found to improve student persistence and skill gain in basic skills programs or ESL programs.

Individual Responsibility as Opposed to Institutional Responsibility: One of the conflicts among those who examine issues of student engagement relates to whether more of the responsibility for student/institution integration or fit should fall to the institution than to the student (Rendon, Jalomo, and Nora, 2000). Recent studies have found greater success for students at some for profit institutions known for streamlining the process for the student as consumers (Deil-Amen and Rosenbaum, 2003), than at public community colleges. This analysis calls into question whether it’s the student who needs to be integrated into college, or the institution that needs transformation to fit today’s student.

Call for institutional transformation: Readon (2006) argues that understanding “success for underserved students requires a deepened consciousness of educational and social inequalities” and specifically the assumption that some students do not “fit” the college environment. Rather, she calls on colleges to “be engaged in transforming their academic

and social structures to foster success not only for the privileged students whose characteristics closely match what postsecondary institutions have traditionally offered and are used to offering. Rather, the challenge is to do things quite differently in the face of a student population that defies homogeneity and seeks to realize an education that values them as capable knowers and views them as whole human beings.”

Connecting this challenge to persistence research, Readon calls for new theoretical models that challenge the engagement literature: theories of institutional transformation, underserved student adaptation to college, educating the whole person, and pedagogical theory for underserved student populations.

How students learn impacts persistence: Pedagogical theory unique to students with different educational backgrounds is also prevalent in the literature on basic skills student persistence. Specifically the National Center for the Study of Adult Learning and Literacy (NCSALL) Adult Development Study

<http://www.ncsall.net/fileadmin/resources/research/brief19.pdf> found that

- a. Adult students have their own “ways of knowing” which are not dependent on previous education, but shape their choices, preferences, and program learning experiences.
- b. Tight-knit, reliable, common-purpose groups formed by students provide adult students emotional and psychological support while challenging and broadening their perspectives.

Implications for Actions: The findings suggest the importance of changing the way colleges engage students in their learning in and out of the classroom, and increasing the student’s responsibility for learning. Research focused on the institution’s fit to students leads colleges to consider transforming themselves to be better suited to the diversity of students, especially under-represented students.

Student Entry Characteristics

Student entry characteristics, and in particular characteristics that are at variance from the norm for traditional college students (generally framed as deficits), have been found to explain student persistence patterns (Braxton, Hirschy, and McClendon, 2004). When conducted with community and technical college students, the large scale research typically tracks quite recent high school graduates in college. Consequently the student entry characteristics perspectives provides little or no help for understanding persistence/success for basic skills students or for others entering college later in life.

Risk Factors: In the past decade the concept of students along a continuum of traditional to non-traditional characteristics has been developed (Horn, 1999). Students are placed on the continuum based on the number of the following characteristics that apply:

- Being academically under-prepared for college-level work;
- Not entering college directly after high school;
- Attending college part-time;
- Being a single parent;

- Being financially independent (i.e., students who rely on their own income or savings and whose parents are not sources of income for meeting college costs);
- Caring for children at home;
- Working more than 30 hours per week; and
- Being a first-generation college student.

Based on national database results, those students with two or more of these characteristics are regarded as being “at risk” because they have lower levels of persistence/success than those with one or fewer characteristics. Students with more non-traditional characteristics are less likely than traditional students to persist or graduate (see web summary of the NCES research on **Persistence and Attainment of Nontraditional Students** at <http://nces.ed.gov/pubs/web/97578g.asp>). The research also confirms that more community and technical college students share two or more of these characteristics than is the case among students at four-year institutions.

A recent review of the literature (Kuh, et al., 2006) found that in the first weeks and months of college, students struggle academically if they enter college with numerous at-risk characteristics, specifically: under-prepared and first-generation students, and ethnic minorities at predominantly white institutions, particularly those from lower income levels.

When other related variables are not in the analysis, **first generation college students** are less likely than their peers to persist and less likely to earn a bachelors degree (Warburton, Bugarin, and Nuñez, 2001). Other student characteristics that have been identified as impacting persistence, especially persistence while at community and technical colleges, are **socioeconomic status, prior education** (especially high school grade point) and **scores on college placement test** (Lotkowski, Robbins, and Noeth, 2004).

Being academically **under-prepared for college-level work** is one of the commonly identified risk factors in the research literature. Yet recent rigorous studies of remedial education found that taking such course work does not have a causal negative impact on progress to the degree (Attewell et al., 2006; Bettinger & Long, 2005).

The ability of students to pay for college is another student characteristic linked to persistence and success. The **econometrics of persistence** research indicates that finance-related choices had direct and indirect influences on college persistence and that market-based monetary measures of financial aid, tuition, housing costs, and other living costs had substantial direct effects on persistence (St. John, Paulsen, 1996).

Recent studies that have combined student entry characteristics (first generation, socioeconomic status, financial aid status, and need for remediation) with the academic momentum variables find that entry characteristics account for only modest levels of student persistence/success. When the academic momentum behaviors are considered, the characteristic that continues to have some modest connection to persistence is getting financial aid. Likewise, socioeconomic status and first generation college status continue to have a modest connection to success, but only to success when measured by bachelor’s degree completion. The research finds that the evidence of building momentum found in the transcript reveals the bulk of the story about student persistence and success (Adelman, 2006; Chen, 2005).

Implications for Action: Given the minimal role of background characteristics in explaining student persistence/success, when academic momentum building behaviors of students are also considered, the long-standing recommendations to better accommodate student deficits or to help students work around their deficits may not be the first choice for college consideration.

Partially Annotated Bibliography

Adelman, C. (1999). *Answers in the Toolbox: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment*. U.S. Department of Education. Washington, DC: Office of Educational Research and Improvement.

This study, based on the High School and Beyond/Sophomore longitudinal database, uses both linear and logistic regression to explore the power of twenty-four variables in explaining long-term (eleven-year) bachelor's degree completion for students who attended a four-year college at any time during that period. Adelman identifies academic resources—intensity and quality of a secondary education—and continuous college enrollment as powerful predictors of degree attainment, which the author identifies as the bottom line of all postsecondary retention and persistence discussions. The comprehensive analyses of college retention literature and of an integrated national data set produced significant results for college retention policy. Adelman concludes that the true challenge of degree attainment for the higher education community requires remedying its ailing pipeline at the elementary and secondary levels.

Adelman, C. (2004) *Principal Indicators of Student Academic Histories in Postsecondary Education, 1972-2000*.: U.S. Department of Education. Washington, DC: Institute of Education Sciences.

Adelman, C. (2005). Educational "Anticipations" of Traditional Age Community College Students: A Prolegomena to Any Future Accountability Indicators. *Journal of Applied Research in the Community College*, 12(1): 93-107.

Adelman, C. (2006, February). *The Toolbox Revisited: Paths to Degree Completion From High School Through College*. U.S. Department of Education. Washington, DC: Office of Vocational and Adult Education.

An update of the 1999 study with a focus on the building academic momentum.

Adelman, C. (2006, April). *The Propaganda of Numbers in Higher Education*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Alamprese, J.A. (2005) Helping Adult Learners Make the Transition to Postsecondary Education. Adult Education Background Papers. Washington, DC: U.S. Department of Education.

Astin, A. W. (1993). *What Matters in College? Four Critical Years Revisited*. San Francisco: Jossey-Bass.

From the author of *Four Critical Years* — a book the *Journal of Higher Education* called the most cited work in higher education literature — *What Matters in College?* presents the definitive study of how students change and develop in college and how colleges can enhance that development. Based on a study of more than 20,000 students, 25,000 faculty members, and 200 institutions, the book shows how academic programs, faculty, student peer groups, and other variables affect students' college experiences.

Astin, A.W. (1997). How Good is Your Institution's Persistence Rate? *Research in Higher Education*, 38, 647-658.

Attewell, P., Lavin, D., Domina, T., & Levey, T. (2006) New Evidence On College Remediation, *Journal of Higher education*, 77 (5 , 886-924.

Chickering, A.W., and Gamson, Z.F. (1987). Seven Principles for Good Practice in Undergraduate Education." *AAHE Bulletin*, 39(7), 3–7.

Berkner, L., Horn, L., & Clune, M. (1995-1996). Beginning Postsecondary Students: Three Years Later, With An Essay On Students Who Start At Less-Than-4-Year Institutions. Descriptive Summary of 1995-96 Beginning Postsecondary Students: Three Years Later: With an Essay on Students Who Start at Less Than 4-Year Institutions. (NCES Publication No. 200154). Available at: <http://nces.ed.gov/pubs2000/2000154.pdf>.

This report examines the persistence and degree attainment after three years for students who began postsecondary education in 1995-96. The essay focuses on students in less-than-4-year institutions, comparing those who started at public institutions with those who started at private, for-profit institutions. The analysis examines degree programs, goals, and enrollment patterns for the two sectors. One of the main questions addressed is why students who begin at less-than-4-year public institutions have lower rates of attainment than those who begin at private, for-profit institutions.

Bettinger, E.P., & Long, B.T. (2005) Remediation At The Community College: Student Participation And Outcomes. *New Directions for Community Colleges*, 129 (Spring), 17-26.

Bradburn, E. M. (2003). Short-Term Enrollment in Postsecondary Education: Student Background and Institutional Differences in Reasons for Early Departure, 1996–98. National Center for Education Statistics (NCES No. 2003-153).

Using the 1996–98 Beginning Postsecondary Students Longitudinal Study, this report describes short-term enrollment in postsecondary education: departure within three years of students' first entry into postsecondary education without earning a credential and without returning. The analyses include exploration of factors associated with departure and the reasons students themselves gave for departure among students who began at public four-year, private not-for-profit four-year, and public two-year institutions.

Braxton, J. M., Hirschy, A. S., McClendon, S. A. (2004). Understanding and Reducing College Student Departure. *AHSE-ERIC Higher Education Report*, 30 (3).

Braunstein, A., McGrath, M., & Pescatrice, D. (2001). Measuring The Impact Of Financial Factors On College Persistence. *College Student Persistence Research, Theory & Practice*, 2(3), 191-203.

An earlier study examined the impact of family income and financial aid on the enrollment decisions of accepted applicants at a single institution of higher learning. A companion analysis was undertaken here to analyze the effect these financial factors had on students' persistence at the same institution during the comparable time period. Surprisingly, financial aid did not have a significant impact on freshmen persistence. However, students from families with greater incomes tended to persist. Academic performance was the overwhelmingly most significant factor affecting a freshmen's decision to continue into the sophomore year, as poor performing students tended to drop out.

Choy, S. (2000). Low-income Students: Who They Are And How They Pay For Their Education (Statistical Analysis Report No. NCES 2000-169). Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

Students from low-income families typically need substantial financial assistance to be able to attend college. This report examines the characteristics of low-income undergraduates and how they pay for college. It begins with a profile of low-income students, comparing them with their not-low-income counterparts. Then, focusing on low-income student who attend full time, full year, it examines their financial need, describes the contribution of financial aid, and presents what is known about how they close the gap

between what they have to pay and the amount of aid they receive. Finally, the report compares three-year persistence among low-income and not-low-income undergraduates. Choy, S. (2002). *Access & Persistence: Findings from 10 Years of Longitudinal Research on Students* American Council on Education: Center for Policy Analysis.

What do we really know about who's going to college? Who persists on the path toward a degree or credential? What happens to students after they enroll? This publication summarizes what researchers have learned about access, persistence, and outcomes from 10 years of federally funded national longitudinal studies of college students.

Deil-Amen, & Rosenbaum (2002), *The Social Prerequisites of Success: Can College Structure Reduce the Need for Social Know-How?*, *The ANNALS of the American Academy of Political and Social Science*, 586 (1): 120-143, online at: <http://ann.sagepub.com/cgi/content/abstract/586/1/120>

Elwell, M.D., & Bean, M.S. (2001). The efficacy of service-learning for community college ESL students. *Community-College-Review* 28(4), 47-61.

A student investigated the effectiveness of using service-learning projects with community college students of English as a second language, who took part in a short-term service-learning project. Results reveal this community service learning project to be highly beneficial to participants on academic, societal, and personal levels. Academically, in a matter of weeks, participants had greatly enhanced their speaking, reading, writing, and listening in the English language abilities, and learned how to carry out meaningful library research. They also learned how to deliver professional and cohesive group presentations. Other results of the study are discussed.

Harvey-Smith, A. (2002). *An Examination of the Persistence Literature and Application in Student Success*.

The persistence of students in postsecondary education represents a major challenge. Retaining minority students within these educational systems often is seen as an insurmountable challenge. It is not. This literature review examines a variety of frameworks and models used to examine this phenomenon. It also explores some of the unique challenges being faced by minority learners in general and African American learners specifically. The review translates the important core elements identified in the literature that support and enhance persistence into implications for a practical and usable model for student persistence with an emphasis on the noncognitive variables found to most significantly impact the persistence of minority student groups. The review concludes with an application of the model in one community college environment.

Horn, L. J. (1999). *Stopouts or Stayouts? Undergraduates Who Leave College in Their First Year*. National Center for Education Statistics (NCES No. 1999-087).

This report examines the educational experiences of students who leave college in their first year. It tracks the path of those who return (stopouts) to determine where and when they enrolled. The report also compares the background and school experience of stopouts with those who did not return to college (stayouts). The analysis reveals that nearly 30% of 1989–90 beginning students left postsecondary education in their first year. Among stopouts in the four-year sector, 42% returned to the same institution, and 58% transferred elsewhere. In the public two-year sector, the opposite pattern occurred: 57% returned to the same institution, and 43% transferred. A majority of stopouts transferred to the two-year sector.

Kuh, G.D., Kinzie, J and Buckley, J.A. (2006) *What Matters to Student Success: A Review of the Literature*, Commissioned paper for NPEC. Retrieved at <http://nces.ed.gov/npec/papers.asp>

This report examines the array of social, economic, cultural, and educational factors related to student success in college, broadly defined. After summarizing the major theoretical perspectives on student success, the report synthesizes the research findings related to students' background and pre-college experiences, students' postsecondary activities emphasizing engagement in educationally purposeful activities, postsecondary institution conditions that foster student success, and the desired outcomes of college and post-college as indicators of success. It offers seven propositions about what matters to student success that lead to recommendations to promote student success, and areas where additional research is needed to increase the odds that more students "get ready," "get in," and "get through."

Lotkowski, V. Robbins, S. Noeth, R. (2004) *The Role of Academic and Non-Academic Factors in Improving college Retention*, ACT Policy Report, retrievable online at : www.atc.org/research/policy/index.html.

McClenney, K.M., and Marti, C. N, (2006) *Exploring Relationships Between Student Engagement And Student Outcomes In Community Colleges: Report On Validation Research*, CCSSE Working Paper, The University of Texas at Austin, retrievable online at: <http://www.ccsse.org/publications/CCSSE%20Working%20Paper%20on%20Validation%20Research%20December%202006.pdf>

Meta analysis of three studies that linked the CCSSE results with respondent data from other sources. One study was conducted by the Florida Department of Education on students in the community college system in Florida. Another study consisted of college participating in the national Achieving the Dream initiative. The third was conducted in Hispanic Serving Institutions. The research was designed to validate benchmarks in the CCSSE.

Matus-Grossman, L. & Gooden, S. (2002). *Students' Perspectives on Juggling Work, Family, and College* *League for Innovation in the Community College, Leadership Abstracts*. Information gathered on low-wage workers in the Opening Doors focus groups at six community colleges has important implications for colleges, employers, and policymakers.

Nippert, K. (2001). *Influences on the Educational Degree Attainment of Two-Year College Students*. *College Student Persistence Research, Theory & Practice*, 2(1), 29-40.

With increasing numbers of students enrolling at two-year colleges, it is clear that additional research is needed to understand and predict the persistence behavior of this group of students. The central purpose of this study was to examine the effects of students' backgrounds, academic and social integration, external influences, and institutional satisfaction on the educational degree attainment of students who began their college experience at two-year colleges. The findings of this study are consistent with previous research and confirm the relationship of college academic activities and college grade point average with student persistence. Students' willingness to re-enroll in their freshman college was also found to positively influence educational degree attainment.

Pascarella, E.T. & Terenzini, P.T. (1991). *How College Affects Students: Findings from Twenty Years of Research* San Francisco: Jossey-Bass.

In this book, Pascarella and Terenzini synthesize 20 years of empirical research and more than 2,600 studies, distilling what is known about how students change and benefit as a consequence of attending college.

Pascarella, E. T., & Terenzini, P. (2005). *How College Affects Students: A Third Decade Of Research*. San Francisco: Jossey-Bass.

Price, D. (2002). *What We Know About Access and Success In Postsecondary Education: Informing Lumina Foundation's Strategic Direction*. Lumina Foundation for Education.

Higher education improves the quality of life by providing long-term economic gains, better health, and increased civic participation. However, many students face difficulties in pursuing higher education. Lumina Foundation has surveyed the existing research in an attempt to assess these difficulties. This white paper documents the extent to which inequity is present across four dimensions of postsecondary access and success — preparation, awareness, financial issues, and institutional responsibility.

Rendón, L.I. (2006) *Reconceptualizing Success for Underserved Students in Higher Education*, Response paper for NPEC. Retrieved on line at http://nces.ed.gov/npec/pdf/resp_Rendon.pdf

Rendon, L., Jalomo, R., & Nora, A. (2000), *Theoretical considerations in the study of minority student retention in higher education*. In J.M. Braxton (Ed.), *Reworking the student departure puzzle* (pp. 127-156). Nashville, TN: Vanderbilt. Online at: <http://courses.ed.asu.edu/rendon/theoretical.htm>

St. John, E. P., & Paulsen, M. B. (1996). The nexus between college choice and persistence. *Research in Higher Education*, 37(2), 175–220.

Initial college choices are considered an influence on persistence, but the impact of students' choices has seldom been considered in studying their persistence and student outcomes. According to these researchers, two distinct sets of theories and research have evolved regarding college choice and persistence as a result of considering them as two separate managerial functions in higher education. College choice research often supports marketing and recruitment, while persistence research supports student retention and completion. Using data from the national postsecondary student aid study, this study examined the influence of finance-related reasons for college choice on persistence decisions. Data showed that finance-related choices had direct and indirect influences on college persistence and that market-based monetary measures of financial aid, tuition, housing costs, and other living costs had substantial direct effects on persistence.

Tinto, V. (1993). *Leaving College: Rethinking the Causes and Cures of Student Attrition, Second Edition* Chicago: The University of Chicago Press.

The author synthesizes far-ranging research on student attrition and on actions institutions can and should take to reduce it. The key to effective persistence, Tinto demonstrates, is in a strong commitment to quality education and the building of a strong sense of inclusive educational and social community on campus. This completely revised and expanded edition incorporates the explosion of recent research and policy reports on why students leave higher education. Incorporating data only now available, Tinto applies his theory of student departure to the experiences of minority, adult, and graduate students and to the situation facing commuting institutions and two-year colleges. He has revised his theory as well, giving new emphasis to the central importance of the classroom experience and to the role of multiple college communities.

Tinto, V. (1998). Colleges as Communities: Taking Research on Student Persistence Seriously. *The Review of Higher Education*, 21, 167-177.

Warburton, E. C., Bugarin, R., & Nunez, A. M. (2001). Bridging the gap: Academic preparation and postsecondary success of first-generation students. *Education Statistics Quarterly*, 3, 73-77.