



RETHINKING STUDENT RETENTION IN COMMUNITY COLLEGES

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Student retention is critical to the community college environment. To understand student retention issues in community colleges, it is necessary to identify the retention goal of the institution, the criteria, definitions, and data needed to monitor progress toward the retention goal. Only then can a retention program be designed and implemented. A plan to establish a college-wide retention program is included. An overview of past and present research pertaining to student retention is provided.

Student retention is an important consideration in the life of community colleges today. Whoever references it—internal administrators, faculty, taxpayers, legislators, state policy makers, and so forth—student retention is significant for measuring institutional effectiveness in the prevailing environment of accountability and budgetary constraints. As faculty and administrators struggle with an escalating barrage of questions from public and governmental agencies about the effectiveness of the educational enterprise, they also are being challenged by legislative constraints on budgets. Understanding these forces and being able to take action pertaining to student retention may spell success or failure for state systems, as well as individual community colleges.

The financial exigencies in operations that are facing community colleges also make retention a critical matter. For example, what college can ignore the potential revenue of several hundred thousand dollars to be gained by retaining students from year one to year two of their postsecondary education career.

Although there are costs in retaining these additional students, such costs should not change materially the overall cost factor used by

a college in setting its tuition rates. Economic prudence does dictate that retention initiatives need to be pre-evaluated in terms of cost-benefit ratios, just as feasibility studies are needed to assess the economic impact of new initiatives in any other case.

How student retention is defined and measured is a problem for community colleges. The primary models for studying student retention are grounded in the work of academic and social integration (Tinto, 1975, 1987, 1993) and involvement (Astin, 1975, 1977). Most of this research is based on traditional-age students in the residential settings of universities, which provides the benchmarks by which universities manage and gauge their success in student retention. This research and its results do little for community colleges.

Although community colleges and universities have commonalities in student attendance, curriculum, and achievement, the goals of the two categories of students often differ, particularly as they relate to workplace skill development. In addition, the community college learning environment is less homogenous due to the different demands of work and family for its students. It is difficult, therefore, to generalize the definitions and measures developed for student retention in universities to community colleges (Ashar & Skenes, 1993; Braxton, Sullivan, & Johnson, 1997; Mohammadi, 1996).

Some early research has been completed on student retention in community colleges (Mohammadi, 1996; Pascarella, Smart, & Ethington, 1986; Walleri, 1981; Wyman, 1997). This research is valuable in that it begins to explore the variations and nuances that are unique to the community college environment and to provide some foundation for future studies. However, a much more comprehensive understanding and integration of all theories of retention with regards to community college students is warranted.

It is important that new research initiatives be undertaken that are targeted directly at community colleges. These initiatives should include the development of theories and models related specifically to community college student retention. Both commonalities and individual characteristics of community colleges need to be considered in the development of these new theories and student retention models.

RETENTION ISSUES

In order to move toward understanding community college student retention, one needs to consider three main issues addressed in the literature. These issues are: (1) definitions of student retention; (2) theoretical models for student retention; and (3) current research and analysis of student retention in the community college context.

These three issues encompass the principal perspectives that are essential to developing a model for student retention in the community college environment. Definitions need to be identified in the sense of finding common denominators for criteria to gauge student retention. Being knowledgeable about the current theories of student retention is necessary to advance theories for the community colleges, as well. Also, researchers, in order to have the benefits of perspective, need to be familiar with the current state of development in the research and analysis for student retention in community colleges. Finally, as a whole, these issues set up the recommendations for development of a student retention plan that is given at the end of this article.

Defining Student Retention

The first issue in understanding student retention for community colleges is to establish a common definition of student retention for community colleges. Whatever term is selected, there needs to be agreement on the meaning of the term to enhance mutual comprehension of the issues by the interested parties.

There is a challenge in developing this definition, because the common definitions employed today in academia were developed for retention considerations in university settings. These definitions are based on too narrow a view to provide a definition of student retention for community colleges.

For example, traditional research in the university context “implicitly or explicitly defines retention as on-time graduation (within four to five years)” (Walleri, 1981, p. 3). As Walleri (1981) proceeds to note, however, a definition based on degree completion is especially troublesome for community colleges when graduation is not necessarily the goal of community college students. For the community college environment, defining student educational goals presents a much greater challenge than simply tracking rates of graduation.

As alternatives to the university-based definitions, “retention can be defined in terms of program completion” (Walleri, 1981, p. 5). “For students in special programs and community education, retention can be defined meaningfully only in terms of student objectives” (Walleri, 1981, p. 4). In Crawford’s (1999) report, retention is defined as “maintenance of continued enrollment in classes throughout one semester. The ratio of units that students successfully-completed [sic] to the units attempted” (p. 13). Terenzini (1987) defined a category of student attrition and retention as an “attainer: a student who leaves prior to certificate or degree completion, but after achieving a personal

goal (for example, completion of a particular course, or acquisition of a particular skill)” (p. 22).

One definition of retention applied in community colleges is phrased as a persistence rate, and it may be helpful for purposes of definition in that it begins to consider goals other than graduation rates. Wyman (1997) defines retention as “the percent of entering students graduating or persisting in their studies at an institution” (p. 29). Persistence in Crawford’s (1999) report is slated as “maintenance of continued enrollment for two or more semesters, specifically from Fall term to Spring term and/or completion of a degree/certificate or transfer to a four-year college” (p. 13).

Another possibility for a definition of student retention for community colleges is outlined in Sydow and Sandel (1998), as they describe how Mountain Empire Community College (MECC) has defined the term for their use. At MECC student retention was defined as enrollment in a subsequent semester and academic achievement as completion of two-thirds of courses attempted with a 2.0 GPA or higher. This effort to base a definition of retention on consecutive semester enrollment and grade point average is especially indicative of the efforts to find a suitable ground for describing retention as it pertains to the community college student who is not dedicated to graduation.

Based on the foregoing efforts, a recommended definition of student retention for community colleges encompasses several material factors. These factors are: (1) initial identification of the student’s goal; (2) periodic verification or adjustment of the goal; and (3) persistence of the student toward the goal. The authors believe that a single definition of retention would be difficult to establish. They encourage colleges to establish their definition of student retention based on the guidelines of the state where they operate.

Theoretical Models for Student Retention

The second issue in community college student retention is the theoretical models commonly referenced for student retention. These models, described below, have consistently provided the basis for study and discussion of student retention. Again, the scholarly efforts are primarily in the university context.

The theoretical institutional models that are best known and accepted are Tinto’s (1975) work regarding academic and social integration and Astin’s (1977) study of involvement. An overview of Tinto’s model identifies the major factor of persistence as being how well the student is integrated into the university. The model posits that

interaction between the student and the academic and social systems of the college are vital for the student to connect to the college and persist in his or her education.

In related work, Tinto indicates that the institutional commitment needs to provide peer group and faculty interaction. He also notes that lack of integration arises from two sources—incongruence and isolation. Both of these ideas are linked to social interaction. Incongruence is tied to the concept that “individuals perceive themselves as being substantially at odds with the institution” (Tinto, 1987, p. 53). The other aspect, isolation, is the condition where little, or no, social interaction is taking place for the student (Tinto, 1987).

Astin (1977, 1993) frames persistence of students in terms of involvement rather than integration. The involvement can manifest itself in interaction with peers or faculty. Interaction with peers or faculty aids in the student remaining in college. This interaction can be in the classroom or involve other activities related to completing assignments, working on class projects, or participating in school activities.

Pascarella and Terenzini (1991) not only consider the Tinto model but also generally affirm the effectiveness of the model in terms of academic and social integration in university settings. Their research further notes that frequent, informal contacts focusing on intellectual matters with faculty are important to the academic integration into college of the students. In the opinion of the researchers, this integration is a key to students remaining in school.

The foregoing models are based on research regarding student retention in a university setting. These studies are typically focused on the traditional age student in the university who has the goal of completing a bachelor’s degree. Students enrolled in the community college often are not traditional age students and have goals other than completing a bachelor’s degree.

New perspectives need to be included in student retention models to work effectively with the subject in the community college setting. Choy (2001), analyzing studies conducted by the National Center for Educational Statistics (NCES), presents such a perspective.

Choy (2001) notes the experiences of postsecondary students whose parents did not attend college, as follows:

Such students are at a distinct disadvantage when it comes to postsecondary access—a disadvantage that persists even after controlling for other important factors such as educational expectations, academic preparation, support from parents and schools in planning and preparing for college, and family income...among those who overcome the barriers to access and enroll in postsecondary education, students whose

parents did not attend college remain at a disadvantage with respect to staying enrolled and attaining a degree (Choy, 2001, p. xviii).

Experts recognize that the powerful models and research at the university level need to be adapted to community colleges. Recent research by Elkins, Braxton, and James (2000) recommends that Tinto's formulations regarding student separation theory be replicated "especially in two-year colleges" (pp. 265–266) to test the validity of the formulations in different environments. Clearly this should be an agenda item for researchers and student development specialists in the community college.

Current Research and Analysis of Student Retention

Current research and analysis of student retention in the community college environment is the third issue for understanding student retention. Although such research and analysis is sparse, there is a growing body of knowledge that is promising.

Community college enrollment can mean the student is interested in a two-year associate degree, a one-year certificate or diploma in a career field, a series of classes to re-train for job competitiveness, or completion of one course for personal interest or skill force development. Students in a community college also may be testing post-secondary education in a convenient, inexpensive environment. These differences when explored through the mission and culture of a college tend to attract different students than are attracted to universities. Institutional differences and changing characteristics of students (Ashar & Skenes, 1993; Astin, 1998) need to be understood before retention efforts in the community college environment are effective.

A segment of the research and analysis reports on the characteristics (sex, ethnic origin, academic aptitude, high school achievement, and parents' formal education) and behaviors (involvement in college activities and organizations) of students (Tinto, 1987). Other research considers the characteristics of institutions (Wyman, 1997) and what impacts student retention. Wyman's study more specifically finds that "retention rate variance is explained by the model, which posits retention rate to be a function to two independent variables: regional employment per capita at the time of cohort formation" (p. 38) and "the ratio of institutional instruction and academic support spending per headcount student to regional income per job at the time of cohort formation" (p. 38).

Zwerling (1980) examines the institutional factors that impact student retention in community colleges. He states: "To reduce sig-

nificantly the staggering attrition at the average community college, it appears necessary to shift the focus from what is wrong with the student to what is wrong with the institution" (p. 56). In his view, institutional factors that can positively impact retention include: emphasizing college work awards; providing adequate advising; offering financial aid; sponsoring orientation; and counseling at times convenient for the adult student.

Mohammadi (1996) reports that research fully documents that retention rates in community colleges are considerably lower than those in four-year institutions. He cites a three-year average retention rate for two-year public college students who do not return the second year as slightly over 50%. The average retention rate for four-year public colleges is 67%.

In the same study Mohammadi (1996) notes the following two primary reasons that the traditional theories developed in the university context are not well suited for retention studies in community colleges:

1. Demographic and socio-economic factors relating to community college students are somewhat different from those relating to students attending four-year colleges.
2. External forces, particularly those related to community forces in the immediate geographical environment of the college's service area... (p. 39).

Classes in a community college setting that are smaller, more homogeneous, and thus socially more integrated lost fewer students according to the research conducted by Ashar and Skenes (1993). Their work is particularly valuable in assisting community college personnel with the programs that aid in increasing student retention.

One way to assess the importance of retention for community colleges is to review statistics regarding the profiles of the American undergraduate students involved in the community college. The American Association of Community Colleges note in the *National Community College Snapshot* that 44% of all U. S. undergraduates and 46% of first-time freshmen are enrolled in community colleges (American Association of Community Colleges, 1997). Vaughan (2000) in *The Community College Story* states first-time freshmen enrolled in community colleges had reached 47% in 1997 (p. 13).

Another important part of the profile of the community college student body is the proportion of minority and first generation students who are enrolled. This growing segment of community college enrollment warrants special attention in terms of understanding student retention. The National Center for Education Statistics

(NCES) reports minority enrollments in community colleges increased from 25% in 1992 to 30% in 1997. In four-year colleges, minority enrollment moved from 21% to 24% during the same period. Secondly, the NCES estimates that 60% of public community college students are first generation students (as cited in Phillippe, 2000). It is apparent that minority and first generation students are finding access to higher education through community colleges.

Despite the large number of entering freshmen, minority, and first generation students who enroll in community colleges, too few research studies have been completed on the community college environment. Regarding the sparsity of the research and analysis, Pascarella (1999) notes that student retention is not well researched considering the number of students enrolling in community colleges. In their work, Pascarella and Terenzini (1998) state:

While it may be the case that four out of every ten American college students are enrolled in community colleges, it would be a very liberal estimate to say that even 5% of the studies reviewed for 'How College Affects Students' focused on community college students. (p. 155)

To have such a small proportion of retention studies focused on community college students is unfortunate. Pascarella (1999) contends that "we cannot afford to continue to operate in ignorance of the educational influence of a set of nearly 1,300 postsecondary institutions that educate almost 40% of our students" (p. 13). Pascarella (1999) also comments in his review of studies that are tracking effects of community colleges on students:

Thus, community colleges may, in fact, provide a relatively cost effective way for substantial numbers of students to obtain the first two years of postsecondary education without necessarily sacrificing the intellectual/developmental impact of their college experience or their relative competitiveness in the marketplace. (p. 12)

Given these data and research indicators, it is evident that community college researchers need to rethink the issues of student retention and refine a definition of student retention for community colleges as defined earlier in this article. Following are some thoughts regarding strategies for student retention that are or could be applied in community colleges. The strategies are: (1) developing indicators; (2) creating learning communities and cohort groups; (3) developing directed retention programs; and (4) developing tutoring programs and supplemental instruction. These strategies, when further developed, would provide the stepping stones for administrators,

and in particular the directors of institutional research, to undertake a more comprehensive study of student retention that covers such matters as defining student retention, developing models, and increasing the amount of research on community college student retention.

Developing Indicators

Community college leaders need to develop appropriate indicators of student retention. Developing these indicators could be greatly assisted by the American Association of Community Colleges (AACC) lending their expertise to this important issue.

By identifying appropriate indicators for the community college student, administrators and interested parties can begin to assess student retention for the community college and start the development of student retention programs. As an example, the American Association of Community College's "Faces of the Future" project (Phillippe, 2000) could be expanded to address the issue of student retention. In addition, Kirkwood Community College's (Iowa) partnership with American College Testing (ACT) has led to the development of an ACT Center on Kirkwood's campus (Kirkwood Community College, 2001) to support life-long learning and aid individuals in meeting the requirements of a rapidly changing work environment.

A leading example is the list of indicators developed for community and technical colleges in Washington State (Washington State Board, 1997). These indicators include:

- (1) Percent of degree-seeking students who attended four or more quarters in a two year period;
- (2) Percent of degree-seeking students who attend only one quarter and do not return in a two year period;
- (3) Percent of students who enroll in a developmental English or math course who progress to college-level English or math;
- (4) Measure of credits taken by students compared to credits required to complete course of study;
- (5) Percent of students graduating or completing within three years of initial enrollment. . . . ; and
- (6) Hours completed by basic skills students (p. 1).

By tracking these indicators over a period of time, the Washington State system is able to assess the types of programs that need to be developed and implemented to increase student retention rates.

Creating Learning Communities and Cohort Groups

Learning communities and cohort groups offer the structure for students to integrate and engage in the educational process. These groups

can be configured around a program of study or a residential setting. Through group interaction and group support, therefore, students are given a support structure that encourages retention.

An example of such an approach is offered through Coordinated Studies Programs (CSP). This approach is offered by Seattle Central Community College, Washington where these programs are typically offered within the Humanities Division of the Transfer/Liberal Arts studies area (Tinto, Russo, & Kadel, 1994).

The CSP programs include widespread, interdisciplinary faculty involvement. The students and faculty meet in four- to six-hour blocks of time over two to four days. CSP course activities include a variety of participatory assignments—lectures, discussions, guest speakers, films, and small- and large-group activities.

Students who take part in CSP programs spoke of their increased desire to continue their education as a result of the experience. “Student involvement was further enhanced by an increasing amount of social, emotional, and academic peer support that emerged from classroom activities” (p. 28). Such involvement is well documented as an indicator of successful student retention. Although this movement has been very successful in both private and public colleges, it has been slow to become widespread in community colleges (Lenning & Ebbers, 1999).

Developing Directed Retention Programs

An additional approach to enhance student retention in a community college environment is found in Crawford’s 1999 report on the Extended Opportunities Programs and Services (EOP&S) program available in all 106 California community colleges. The EOP&S program provides services that enhance persistence and academic achievements for low income, educationally disadvantaged students enrolled in the program.

Program standards in the EOP&S program include a variety of services. A sample of these services are outreach/recruitment, orientation, registration, progress monitoring, basic skills instruction, child care, peer advising, financial aid grants, and single parenting support groups.

This program makes services available to a targeted group of students in order to enhance retention for these students. Such a program of services can be applied to the entire student population for retention purposes.

Developing Tutoring Programs and Supplemental Instruction

Tutoring programs typically focus on students who are having difficulty in a class. These programs provide special methods to assist such students.

Community colleges have a successful history in the area of developmental and remedial education. As the community college student population continues to expand, even with more traditional students, there is a need for innovative tutoring programs to further the objectives of remedial and developmental education.

Another approach, commonly called Supplemental Instruction (SI), focuses on the classes that are difficult and provides the additional instruction necessary for students to master the difficult material. This program approach may hold significant potential for assisting students in community colleges, as well as universities.

A project report by Hensen (2001) describes the progress of an Iowa State University endeavor using peer assisted study sessions to enhance student performance and retention. Hensen further describes the SI program in the following manner:

The Supplemental Instruction model is a unique academic support program that targets difficult courses rather than high-risk students. This voluntary program is not viewed as remedial as it is open to all students enrolled in the targeted course. . . . This student attends lecture regularly and plans two 90-minute review sessions per week. The SI Leader does not re-lecture to the students but rather utilizes collaborative learning strategies to assist students. (p. 2)

GENERAL STEPS FOR ACTION

It is clear that the first step in understanding student retention issues in a community college setting is to delineate between the role and mission of the educational setting and the students who attend the institution. Community colleges must identify criteria for tracking student retention, including definitions and establishing appropriate base line data. Based on the results of steps one and two, community colleges can then design and implement the appropriate retention programs and strategies to enhance student retention.

In theoretical terms, although it is necessary to consider the academically accepted models of Tinto, Astin, Pascarella, and Terenzini that have been developed for student retention in universities, it is critical to study the emerging research on student retention in community colleges. Educators and authors, such as Mohammadi, Wyman,

and Braxton, are beginning to explore retention in the community college environment. Their early works are promising. The works are preliminary, however, and such scholars and community college researchers must begin to develop their own theories of student retention for community colleges.

The nature of student retention in community colleges is much more diverse and complex than the current literature base would indicate. This knowledge will enhance the efforts of administrators and faculty members in the community college system to serve the variety of students who seek to improve their lives by attending community colleges. Furthermore, research focused on pertinent student retention issues in community colleges will benefit all segments of education.

SPECIFIC RECOMMENDATIONS

In order to maximize efforts for student retention, a list of recommendations for establishing a plan is provided below. These recommendations, organized into two sections—one on philosophy and one on processes/procedures—address the major topics of a retention plan for an individual college.

These recommendations are intended to stimulate discussions and generate cohesiveness among all interested parties. They also are intended to provide the framework and data for the initial development and implementation phases of the plan. As a result of the initial efforts, it is expected that an institution will have begun the evolving processes of student retention. Further, these processes will enable the institution to make more effective decisions and improve the design of its plan in accord with its unique characteristics, challenges, and objectives for student retention.

Institutional Philosophy for Student Retention

1. Identify an individual within the institution to be the leader of the retention program. This individual should have a broad-based understanding of curriculum, student support, retention research, and clearly understand retention goals of the college.
2. Identify a task force to develop and define retention goals and the retention plan. Task force membership should include the leader of the retention program, two academic administrators, two arts and science faculty, two career and technical program faculty (from the faculty membership, include adjunct faculty in some way), two academic advisors/counselors, two learning support staff

(learning center, library, or tutoring), two support staff who work with students (i.e., admissions, business office, etc.), and two to four students (part-time and full-time).

3. Determine terms and definitions to be used uniformly throughout the college for retention data. For example: “Retention”—Continuous enrollment from one semester to another for a minimum period of two years; “Persistence”—completion of two-thirds of credits attempted with a GPA of 2.0 in sequential semesters; and “Goal Completers”—completion of diploma, certificate, degree, or course sequence, depending on goal identified by student. This may include accepting a workforce position after gaining the necessary skills.
4. Determine data elements that need to be collected and reported for state and federal reporting. Establish uniform formats, such as: Credit hours completed vs. credit hours attempted; official term enrollments such as tenth-day enrollment figures; number of graduates per program or division; and number of goal completers per program or division.
5. Determine retention goals for the institution and determine what data need to be collected to measure activity for each goal. For example: Increase program retention by 10%, thus requiring the tracking of goal completers or persistence rates.
6. Review data-gathering forms and contact points modifying any data-gathering media, as needed. For example: Review application and admission forms to determine if data required is being collected (e.g., student goals; although this may seem to present some problems by increasing the complexity of application in the long term it is worth it for retention purposes).
7. Conduct focus groups with students and support staff to determine what type of assistance will help retain students. Groups should consist of: various age groups for both full-time and part-time students; nontraditional students (i.e., age, minority status); career and vocational students; transfer students for arts and sciences; and faculty and staff (professional and classified).
8. Review grant initiatives and determine if grants can be secured to support and enhance student-retention initiatives. For example: Title III or National Science Foundation grants; and Ford Foundation or Pew Trust grants.
9. Attend regional and national conferences to tap into networks that are working on retention in community colleges, such as National Academic Advising Association (NACADA); National Institute for Staff & Organizational Development (NISOD); and National Council on Student Development (NCSD).

10. Determine evaluation criteria for the retention plan, such as program specific target retention rates (i.e., 5% increase); priority of new initiatives to be implemented; and tracking number of students assisted through particular initiatives (i.e., orientation sessions, supplemental instruction, early-warning notices).

This first section on the development of the institutional philosophy for student retention sets forth the theoretical basis for the effective development and implementation of a student retention plan. The second section, as follows, addresses recommendations for the internal institutional processes and procedures that need to be in place for such a plan.

Institutional Processes and Procedures for Student Retention

1. Provide staff training and orientation to aid institutional understanding and support of student retention.
2. Identify current projects that support and encourage student retention. Determine if these successful projects can be extended to other programs or departments. For example: tutoring groups, discussion groups, supplemental instruction, or learning communities.
3. Review recruiting and admission processes and forms to determine if the information gathered provides a solid foundation for retention strategies. For example: gather information from staff, representing student-retention task force, research office, computer services, and student services.
4. Review admission and advising strategies affecting minority populations from the perspectives of retention and recruitment. For example: design special retention strategies that support the needs of minority students (i.e., English as a Second Language, Learning Communities); and examine admission, orientation, and support programs.
5. Establish an early-warning system that lets faculty notify counselors, advisors, or tutors to assist students who are having difficulty in class. Start a subcommittee to identify strategies to provide an early-warning system for students who seem to be at risk of leaving. This could be an e-mail system or a particular form that is dropped in a mailbox for the student's counselor, advisor, or tutor.
6. Provide tutors in classes that typically have high percentages of students who have difficulties (i.e., English, math, science, selec-

ted vocational program courses). Tutors or peer mentors who are in the classroom with the instructor and the students can bridge the process of a student getting acquainted with such aides. These aides extend assistance in the classroom thus preventing the student from feeling frustrated and falling behind. This approach lets the instructor clarify questions so that all parties—instructor, aides, and students—have the same direction.

7. Pilot a Supplemental Instruction (SI) program. Select difficult courses (i.e., English, math, science) and establish a supplemental instruction program.
8. Pilot cohort programs that have collaborative support systems with a team of faculty, advisors, tutors, and other support staff, as needed. Identify instructional programs that are based on a team approach to retain students. A variety of programs—from career programs to transfer programs—should be considered.
9. Develop and implement staff-development training that will provide the college work force with current information on the issues of student retention. When forms or processes are modified, these changes should be presented to the staff to permit discussion of any concerns. Review progress of student-retention initiatives and gather feedback for continuous improvement.

SUMMARY

Community colleges are well known for the creativity and initiative they have brought to higher education. The issue of student retention in the community college must become a priority for community college leaders who will undertake the research on program development necessary to establish the student retention theories needed in the community college environment.

Community college leaders can develop common denominators that aid individual programs and schools in documenting whether they are meeting the student retention goals in accord with student retention theories that are appropriate for community colleges. Student retention will become a major issue in community colleges unless we begin to address the issues and the ways in which we discuss and think about student retention in the community college environment.

REFERENCES

- American Association of Community Colleges. (1997). *All about community colleges: National community college snapshot* [On-line]. Available: aacc.nche.edu/allaboutcc/snapshot.htm

- Ashar, H., & Skenes, R. (1993). Can Tinto's student departure model be applied to nontraditional students? *Adult Education Quarterly*, 43(2), 90–100.
- Astin, A. W. (1975). *Preventing students from dropping out*. San Francisco: Jossey-Bass.
- Astin, A. W. (1977). *Four critical years: Effects of college beliefs, attitudes, and knowledge*. San Francisco: Jossey-Bass.
- Astin, A. W. (1993). *What matters in college? Four critical years revisited*. San Francisco: Jossey-Bass.
- Astin, A. W. (1998). The changing American college student: Thirty-year trends, 1966–1996. *The Review of Higher Education*, 21(2), 115–135.
- Braxton, J. M., Shaw Sullivan, A. V., & Johnson, Jr., R. M. (1977). Appraising Tinto's theory of college student departure. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research: Vol. XII* (pp. 107–164). New York: Agathon.
- Choy, S. P. (2001). Students whose parents did not go to college: Postsecondary access, persistence, and attainment. (NCES 2001 072) U.S. Department of Education, NCES. Washington, DC: U.S. Government Printing Office.
- Crawford, L. (1999, March). *Extended opportunity programs and services for community college retention*. Paper presented at the Annual California Community Colleges Chancellor's Office Statewide Conference, Monterey, CA. (ERIC Document Reproduction Service No. ED 429 642)
- Elkins, S. S., Braxton, J. M., & James, G. W. (2000). Tinto's separation stage and its influence on first-semester college student persistence. *Research in Higher Education*, 41(2), 251–268.
- Hensen, K. A. (2001). Supplemental instruction: Peer assisted study sessions. Unpublished manuscript, Iowa State University at Ames.
- Kirkwood Community College. (2001). Kirkwood training and outreach services: Kirkwood ACT Center [On-line]. Available: www.kirkwood.cc.ia.us/ktos/actcenter.html
- Lenning, O. T., & Ebbers, L. H. (1999). *The powerful potential of learning communities: Improving education for the future*. ASHE-ERIC Higher Education Report, Vol. 26, No. 6 (ERIC Document Reproduction Service No. ED 428606)
- Mohammadi, J. (1996, Spring). Exploring retention and attrition in a two-year public community college. *VCCA Journal*, 10(1), 39–50.
- Pascarella, E. T. (1999). New studies track community college effects on students. *Community College Journal*, (June/July), 8–14.
- Pascarella, E. T., Smart, J. C., & Ethington, C. A. (1986). Long-term persistence of two-year college students. *Research in Higher Education*, 24(1), 47–71.
- Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco: Jossey-Bass.
- Pascarella, E. T., & Terenzini, P. T. (1998, Winter). Studying college students in the 21st century: Meeting new challenges. *The Review of Higher Education*, 21(2), 151–165.
- Phillippe, K. A. (Ed.) (2000). *National profile of community colleges: Trends and Statistics* (3rd ed.). Washington, DC: Community College Press.
- Sydow, D. L., & Sandel, R. H. (1998, October/November). Making student retention an institutional priority. *Community College Journal of Research and Practice*, 22(7), 635–644.
- Terenzini, P. (1987). *Studying student attrition and retention*. In G. W. McLaughlin and J. A. Muffo (Eds.), *A primer of institutional research* (pp. 20–35). Tallahassee, FL: Association of Institutional Research.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45, 89–125.
- Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago: University of Chicago Press.

- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press.
- Tinto, V., Russo, P., & Kadel, S. (1994, February/March). Constructing educational communities: Increasing retention in challenging circumstances. *Community College Journal*, 64(4), 26–29.
- Vaughan, G. B. (2000). *The community college story*. Washington, DC: Community College Press.
- Walleri, D. R. (1981). *Student retention and attrition in the community college: A review and research design*. Gresham, OR: Oregon Community College Deans of Students Consortium, Oregon State Department of Education (ERIC Document Reproduction Service No. ED 210 064).
- Washington State Board for Community and Technical Colleges, Education Division. (1997). *Retention in Washington community and technical colleges*. Olympia, WA: Author. (ERIC Document Reproduction Service No. ED 430 637)
- Wyman, F. J. (1997). A predictive model of retention rate at regional two-year colleges. *Community College Review*, 25(1), 29–58.
- Zwerling, L. S. (1980). Reducing attrition at two-year colleges. *Community College Review*, 8(2), 55–59.