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**AN EXAMINATION OF DIFFERENCES BETWEEN
OCCUPATIONAL-TECHNICAL STUDENT
AND TRANSFER STUDENT ENGAGEMENT
AT SMALL COMMUNITY COLLEGES IN VIRGINIA**

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A Dissertation Submitted to the Faculty of
Old Dominion University in Partial Fulfillment of the
Requirements for the Degree of

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COMMUNITY COLLEGE LEADERSHIP

OLD DOMINION UNIVERSITY
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ABSTRACT

AN EXAMINATION OF DIFFERENCES BETWEEN OCCUPATIONAL-TECHNICAL STUDENT AND TRANSFER STUDENT ENGAGEMENT AT SMALL COMMUNITY COLLEGES IN VIRGINIA

Janet T. Laughlin
Old Dominion University, 2006
Director: Dr. Dennis E. Gregory

This study examined the differences in levels of student engagement between occupational-technical students and transfer students in an attempt to gain insight into why so many students fail to attain their educational goals. Students' engagement or involvement with their educational institution and program of study is considered a major contributor to persistence and graduation. Research on student engagement as it relates to persisters and leavers includes the five student engagement variables benchmarked by the Community College Survey of Student Engagement (CCSSE): (a) active and collaborative learning, (b) student effort, (c) academic challenge, (d) student-faculty interaction, and (e) support for learners. Using the results of The Community College Student Report (CCSR) 2005 questionnaire developed by CCSSE, this study confirmed previous research on differences in demographic characteristics and risk factors between occupational-technical students and transfer students.

The study also revealed differences in overall student engagement, and determined how occupational-technical students and transfer students engaged differently with their institutions on each of the five student engagement variables benchmarked by CCSSE. In fact, findings showed that occupational-technical students and transfer students differed significantly in their levels of engagement on all of the student

engagement variables except one, student-faculty interaction. Additionally, students' intention to persist differed between occupational-technical program majors and transfer program majors, and the relationship between the student engagement variables and students' intention to persist also differed between occupational-technical students and transfer students.

The multifaceted nature of student engagement, coupled with the tremendous diversity of community college students, provides a prolific field for further exploration. While much of the research on student engagement and on the variables benchmarked by CCSSE has been conducted with students in four-year institutions, the results of this study reiterate the need for community colleges to disaggregate the data and learn more specifically how different groups of students engage differently and are impacted by the total college environment. The need to develop appropriate, intentional interventions to improve the retention and graduation rates of community college students compels educators to conduct further research.

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Sometimes, it is a *jitterbug*, wild and crazy, with volume blaring. Cohort One of the Community College Leadership Ph.D. program knows how to jitterbug. Pat has been interim vice president how many times? Martha, Bill, Helen, Dick, Joe, Kellie, and Jay changed jobs. Betty got a new dean, and Pam is getting a new president. Ruth traveled and traveled and traveled.

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CHAPTER I

INTRODUCTION

Community colleges, known as the “people’s colleges,” are an integral part of a community at work as curricular programs, workforce development, and economic development are increasingly tied to the concept of “community development” (Cohen & Brawer, 2003; Grubb, Badway, Bell, Bragg, & Russman, 1997). Without an educated workforce, economic and community development are stifled. Technological developments and their impact on skills needed to access jobs with salaries sufficient to support a family will make it necessary to have some education beyond high school (Bailey, 2003; Carnevale & Desrochers, 2004; McClenney, 2004). Yet, many students who enter college leave before gaining the skills or credentials to be competitive in today’s global environment.

Background

Education impacts state and personal economies. Having an educated, skilled workforce is a key issue that Chambers of Commerce across the nation address (U.S. Chamber of Commerce, 2001). In the Environmental Scanning Initiative, 2004 conducted for the Association of Community College Trustees (ACCT), personal economic security ranked among the top 20 trends predicted to impact colleges and communities in the near future (SunGard Collegis, 2004). Partnerships between educators and business and industry are encouraged so that each is aware of the other’s needs and planning for a trained workforce occurs in concert (Grubb et al., 1997; Lewis, 2001; Liu, X., Liu, L., Koong, & Lu, 2003; Pearson & Champlin, 2003; Teeter, 1999). Reports by the U.S. Department of Labor (1999, 2002) underscore the fact that the person with more

education can expect higher lifetime earnings and is less likely to be unemployed (see also Brown, 1999; Institute for Higher Education Policy [IHEP], 1998; Porter, 2002). Further, these reports assert that it is easier for educated persons to gain employment, in part, because employers believe these workers are more organized and learn new tasks more easily. Table 1 presents unemployment by educational attainment as of January 2006, clearly showing the correlation of education to unemployment (U.S. Department of Labor, 2006).

Table 1

Unemployment Rate of the Civilian Population 25 Years and Over by Educational Attainment, January 2006 (Percent)

	Less than a high school diploma	High school graduates, no college	Some college or associate degree	Bachelor's degree and higher ^a
Unemployment				
Rate	7.0	4.4	3.5	2.1

^aIncludes persons with a bachelor's, master's, professional, and doctoral degree.

Table 2 presents data for 2005 that show unemployment rates by educational attainment, sex, race, and Hispanic or Latino ethnicity (U.S. Department of Labor, n.d.). The gap in educational attainment between African Americans and other races/ethnic groups is gaining focused attention from groups such as the Lumina Foundation for Education (2005) and community colleges participating in the Achieving the Dream: Community Colleges Count initiative. The significantly higher unemployment rates for

African Americans shown in Table 2 reiterate the importance of education to increasing employment opportunities and, thus, a better quality of life.

Table 2

Unemployment Rate for Civilian Noninstitutional Population 25 Years and Over by Educational Attainment, Sex, Race and Hispanic or Latino Ethnicity, 2005 (Percent)

	Less than a high school diploma	High school graduates, no college	Some college or associate degree			
			Total	Some college, no degree	Associate degree	Bachelor's degree and higher
Total	7.6	4.7	3.9	4.2	3.3	2.3
Men	6.4	4.6	3.7	3.9	3.3	2.3
Women	9.7	4.8	4.0	4.5	3.3	2.7
White	6.5	4.0	3.4	3.6	3.1	2.1
Black or African American	14.4	8.5	6.9	7.7	5.1	3.5
Asian	5.5	4.6	3.2	3.6	2.6	3.0
Hispanic or Latino ethnicity	6.2	4.5	4.1	4.1	4.0	2.9

In 2003, the U.S. average share of the labor force having less than a high school diploma was 10.2%, and of the 13 states where the rate was higher, 8 were in the South

(Krolik, 2004). The unemployment rate was 8.8% in 2003 for persons 25 years and older with less than a high school diploma. The need for its citizens to understand the connection between education and employment opportunities is no different in Virginia than it is in other states across the nation. The State Council of Higher Education for Virginia (SCHEV) (2003b) in a proposal for an educational outreach campaign stated: “To remain competitive in the global marketplace, Virginia requires an educated citizenry with an increasing need for some form of advanced training leading to a marketable credential or qualification” (p. Tab O3-4). Recognizing the economic implications of education, the Virginia Community College System’s (VCCS) “Dateline 2009” plan for the future includes as one of its goals: “To expand its capacity and provide greater economic opportunity, by 2009, the VCCS will rank in the top ten percent in the nation with regard to: graduation rates, retention rates, and job placement rates” (Virginia Community College System [VCCS], 2004). Table 3 presents unemployment rates by educational attainment for the state of Virginia (Krolik, 2004).

Table 3

Virginia Unemployment Rates by Educational Attainment of the Civilian Labor Force 25 Years and Older, 2003 (Percent)

Area	Total	Less than a high school diploma	High school	College	
			graduates, no college	Some college or associate degree	Bachelor’s degree and higher
Virginia	3.0	6.8	3.3	2.8	2.1

Postsecondary education provides both public and private economic and social benefits (IHEP, 1998). The relationships between the categories are frequently symbiotic as can be seen from the examples of benefits that follow. Private economic benefits of postsecondary education include better wages and benefits, higher levels of employment with greater consistency, greater personal/professional mobility, better working conditions, and increased savings. Public economic benefits of higher levels of educational attainment include greater tax revenues, increased consumption, higher workforce productivity and flexibility, and less reliance on government assistance. Private social benefits include better access to health care, longer life expectancy, better quality of life for offspring, more leisure time, more knowledgeable consumer choices, and increased personal status (IHEP, 1998). A study by Rowley and Hurtado (2002) found that postsecondary students tended to be more open minded, more cultured, more rational, more consistent and less authoritarian, with students passing along these attributes to their children. Public social benefits include a better leadership pool for communities, increased philanthropy and volunteerism, greater civic engagement, lower incarceration rates, greater social cohesion and appreciation of diversity, better adaptation and use of technology, and lower public health-care costs (IHEP, 1998).

Community colleges have a social and economic impact on students, families, and the communities the colleges serve. Students who receive their education at a community college tend to stay in the region, providing long-term economic benefits to the community (American Association of Community Colleges [AACC], n.d.c). For each dollar invested in community colleges, studies have shown that taxpayers receive \$3 in

benefits. The personal economic benefits associated with educational attainment are presented in Table 4 (AACC, n.d.c).

Table 4

Median Earnings for People 18 or Older by Education: 2002

Education	Earnings
Some high school	\$17,787
High school diploma	\$25,081
Some college, no degree	\$29,902
Associate degree	\$31,358
Bachelor's degree	\$41,361
Master's degree	\$50,703
Professional degree	\$76,659
Doctorate	\$71,541

Providing equal access to education is the mission of the community college (Cohen & Brawer, 2003). Keeping students in college, however, is a challenge all colleges face—particularly community colleges. The national average retention rates from the freshman to the sophomore year are shown in Table 5 (ACT, Inc., 2005).

Table 5

National Retention Rates, 2004

Type of Institution	Mean %
Two-year public	51.3
BA/BS public	70.0
MA public	69.9
PhD public	78.1
National	68.3

The relatively low percentage of students who graduate with a degree is of concern to both two-year and four-year institutions. ACT, Inc. (2005) found that the completion rate for associate's degrees from two-year public institutions in three years or less was 29.0% in 2004, the lowest rate since 1983 and down from a high of 38.8% in 1989. The American Council on Education (ACE) (2003) found a 56% persistence and attainment rate for the 17% of community college students still enrolled after six years. Four-year public baccalaureate institutions showed a completion rate of bachelor's degrees in five years or less of 40.4% in 2004, also the lowest rate since 1983 and down from a high of 52.8% in 1986 (ACT, Inc., 2005). Accounting for students still enrolled or who transferred and earned a degree from another institution, public four-year institutions had an overall six-year persistence and graduation rate of 79% (ACE, 2003).

Of the 1995-1996 incoming community college students who aspired to a certificate or degree, only 25% actually earned the credential by 2001 (ACE, 2003). However, ACE asserts that for many students attending community colleges, program

completion is not a goal, and approximately 31% of students who enter transfer to another institution before completing their program of study. Bean (1990) and Tinto (1987) mirror the confounding effects of students' goals on graduation rates. The Community College Survey of Student Engagement (CCSSE) 2004 data showed that 74% of students surveyed intended to transfer to a four-year college or university, with only 53% having transfer as a primary goal. The National Center for Education Statistics (NCES) found that about 50% of community college students started with the intent to transfer to a four-year institution, but only about 25% actually transferred within six years (NCES, 2003). Bailey (2003) found that fewer than 10% of students who began their education in two-year colleges ever completed a bachelor's degree.

Statement of the Problem

Why do so few students attain their stated education goal? Although many reasons are purported, students' engagement or involvement with their educational institution and program of study is considered a major contributor to persistence and graduation (Astin, 1977, 1984, 1993; Barefoot, 2003; CCSSE, 2004, 2005a; Chickering & Gamson, 1987; Pascarella & Terenzini, 1991; Tinto, 2002a, 2002b, 2003). This study focused on the level of engagement of occupational-technical students and transfer students in 13 small colleges in the Virginia Community College System and those students' intentions to persist in college. CCSSE defines small colleges as those enrolling no more than 4,499 students (headcount). Enrollment data reported for fall 2004 to the

Integrated Postsecondary Education Data System (IPEDS) were used to determine the colleges to include in the study and listed in Table 6.¹

Table 6

Small Community Colleges in Virginia

Name of College	Location	Enrollment
Blue Ridge Community College	Weyers Cave	3942
Dabney S. Lancaster Community College	Clifton Forge	1487
Danville Community College	Danville	4060
Eastern Shore Community College	Melfa	1017
Mountain Empire Community College	Big Stone Gap	2906
New River Community College	Dublin	4103
Patrick Henry Community College	Martinsville	3341
Paul D. Camp Community College	Franklin, Suffolk, Smithfield	1468
Piedmont Virginia Community College	Charlottesville	4358
Rappahannock Community College	Glenns, Warsaw	2691
Southwest Virginia Community College	Richlands	3835
Virginia Highlands Community College	Abingdon	2299
Wytheville Community College	Wytheville	2700

Purpose of the Study

The purposes of this study were threefold: (a) to determine if there was a difference in the level of student engagement between occupational-technical students and transfer students in small community colleges in Virginia; (b) to determine if there

¹According to the fall 2004 IPEDS, Central Virginia Community College (CVCC) was classified as “small.” However, CCSSE used fall 2003 IPEDS (not available to the researcher) to determine small colleges. CVCC was classified by CCSSE as “medium” and therefore not included in the study.

were differences in levels of engagement between occupational-technical students and transfer students in small community colleges in Virginia on each of the student engagement variables benchmarked by the Community College Survey of Student Engagement, i.e. active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners; and (c) to explore the relationship between the student engagement variables and students' self-reported intention to persist in small community colleges in Virginia. The variables were measured by The Community College Student Report (CCSR) questionnaire (Appendix A) which was adapted from the National Survey of Student Engagement (NSSE) (Marti, n.d.).

Significance of the Study

As previously shown herein, educational attainment is important to quality of life for individuals and communities, with postsecondary education providing both economic and societal benefits. A study on the economic impact of Virginia community colleges on the state's economic future found that the "adjusted difference in average annual income between those with a high school degree and those with an associate's degree is \$8,190 for males and \$7,164 for females" (A. Fletcher Mangum Consulting, 2003, p. 13). Over a lifetime, the difference in average annual income is \$160,487 for males and \$85,512 for females (see also U.S. Department of Labor, 2002). AACC (n.d.c) estimates that after working for 40 years, the graduate with an associate degree typically will have earned \$400,000 more than the average high school graduate. Students who are more actively engaged are more likely to achieve their academic goals (Astin, 1977, 1984, 1993; Barefoot, 2003; CCSSE 2004, 2005a; Pascarella & Terenzini, 1991; Tinto, 2002a, 2002b, 2003).

Several community college faculty and administrators have expressed the belief that students in occupational-technical programs are more engaged than transfer students because of the time faculty in occupational-technical programs spend with their students and the time occupational-technical students spend with one another (G. Turnbull, personal communication, November 2004; B. Ramsey, personal communication, January 2005; R. Huffman, personal communication, March 2005). Occupational-technical students are also believed to enjoy the benefits of a learning community without participating in a formally structured learning community per se (L. Powell, personal communication, March 2005; E. White, personal communication, March 2005). However, there is no published research to support or refute the claim that occupational-technical students are more engaged than transfer students. There is also no published comparison of how these students might engage differently at their institutions.

The student categories one can search within CCSSE's online reports include enrollment status (full-time vs. part-time students), credit hours completed (0-29 credit hours or more than 30 credit hours), traditional/nontraditional age students (students who are under 22 years of age/students who are 22 years old or older), developmental/nondevelopmental coursework; credential/noncredential seeking, gender, and first-generation/not first-generation students. When building a culture of evidence and developing interventions to address student success and persistence, it is important to disaggregate the data beyond the categories provided by CCSSE and to examine academic achievement/retention within courses and programs. All Virginia community colleges began administering The CCSR in spring 2005, and students were asked to indicate their program of study. This study provides the foundation for a dialogue on

student engagement and persistence of occupational-technical students and transfer students based on valid and reliable data. That dialogue can lead to interventions that enhance the likelihood of student success among both groups.

Definition of Terms

The following are definitions of key terms used throughout this study:

Academic challenge: The nature and amount of assigned academic work, complexity of cognitive tasks, and standards of evaluation.

Academic programs: Programs that are not occupational-technical.

Active learning: Students have the opportunity to think about and apply what they are learning in different settings (CCSSE). Students are “actively involved or engaged or required to use a great deal of initiative in enhancing their own learning” (Astin, 1993, p. 38). Active learning includes cooperative learning (small groups), student presentations, group projects, experiential learning or field studies, student evaluations of each other’s work, independent projects, student-selected topics for course content, class discussions, student-developed activities (Astin, 1993).

Benchmark: “Industry standard” based on external and internal comparisons and used to set goals for improvement (Marti, n.d.; McClenney, 2004).

CCSSE: Community College Survey of Student Engagement.

CCSR: Community College Student Report questionnaire developed by CCSSE.

Collaborative learning: Students work in groups to master content or develop their own answer to a problem through interaction of group members and the process of reaching consensus; the teacher relinquishes authority; a form of active learning.

Cooperative learning: Students work in small groups to master content or solve a problem. The instructor provides guidance and monitors students to ensure they remain on task and get the right answer.

Credential seeking: Students enrolled in a certificate, diploma, or degree program.

Curricular-placed students: Students who are enrolled in a program leading to a certificate, diploma, or degree.

Developmental coursework: Coursework offered to students who are not prepared for college-level work, typically in the areas of reading, writing, and mathematics as measured by ACT's Computer Adaptive Placement Assessment Support System (COMPASS) placement test scores in the Virginia Community College System.

Enrollment status: Full-time or part-time. Students who are enrolled in 12 or more semester credits are full-time students.

First-generation students: Defined by CCSSE as students whose parents have no college experience.

Intention to persist: A student's self-reported intention to take classes within the next 12 months at the same college or statement of no plan to return.

Noncredential seeking: Students who are taking classes but who are not pursuing a certificate, diploma, or degree.

Nondevelopmental coursework: Coursework offered for college credit.

Nontraditional age students: Defined by CCSSE as students who are 22 years old or older.

Not first-generation students: Students who had at least one parent who attended college.

Occupational-technical students: Students enrolled in certificate, diploma, or Associate of Applied Science Degree (AAS) programs.

Persistence: Semester-to-semester enrollment.

Program-placed students: Students who are enrolled in a program leading to a certificate, diploma, or degree.

Retention: Students complete the semester in which they are currently enrolled.

Small community colleges: Colleges defined by CCSSE as having 4,499 or fewer students (headcount).

Student effort: Time spent on activities that improve learning and success.

Student engagement: “The time and effort expended by the student in activities that relate directly to the institution and its program” (Astin, 1977, p. 21) and measured by CCSSE through student-faculty interaction (in and out of class); student-student interaction (collaborative learning; extracurricular activities); student support (services and quality of relationships); involvement with subject matter (active learning, student effort, and academic challenge).

Student engagement variables: Active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners.

Student-faculty interaction: Any communication between students and faculty.

Support for learners: Three characteristics define support for learners: (a) students perceive the college is committed to their success, (b) the college promotes

positive relationships among different groups on campus, and (c) the college provides specific services students may need to achieve their academic and career plans.

Traditional-age students: Defined by CCSSE as students who are under age 22.

Transfer students: Students enrolled in programs leading to an Associate of Arts and Science degree.

Research Questions

The Virginia Community College System takes seriously its mission “to provide higher education and workforce programs that are geographically and financially accessible and that meet the needs of students, businesses, and communities” (VCCS, n.d.). Therefore, individual colleges must be serious about improving retention, persistence, and graduation rates. Eight research questions formed the foundation for this study. Six questions related to student engagement and the five variables benchmarked by CCSSE’s Community College Student Report (CCSR) 2005 questionnaire. The levels of active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners referenced in Questions 2-6 were measured for occupational-technical students and transfer students by how students rated each item associated with the independent variable on the Likert-type response scale. The level of overall student engagement referenced in Question 1 was measured for each group of students by the composite ratings of students’ responses gathered in Questions 2-6 on items associated with the five independent variables. The literature review indicated that these variables related to persistence and program completion. Questions 7 and 8 related to students’ self-reported intentions to persist in small community colleges in Virginia.

Question 1: Is there a significant difference in the level of student engagement between occupational-technical students and transfer students at small community colleges in Virginia?

Question 2: Is there a significant difference between the level of active and collaborative learning experienced by occupational-technical students and transfer students at small community colleges in Virginia?

Question 3: Is there a significant difference in the level of student effort between occupational-technical students and transfer students at small community colleges in Virginia?

Question 4: Is there a significant difference in the level of academic challenge experienced by occupational-technical students and transfer students at small community colleges in Virginia?

Question 5: Is there a significant difference in the level of student-faculty interaction between occupational-technical students and transfer students at small community colleges in Virginia?

Question 6: Is there a significant difference in the level of support for learners experienced by occupational-technical students and transfer students at small community colleges in Virginia?

Question 7: Is the proportion of occupational-technical students' self-reported intention to persist significantly different from the proportion of transfer students' self-reported intention to persist at small community colleges in Virginia?

Question 8: Is there a significant relationship between the student engagement variables and students' self-reported intention to persist at small community colleges in Virginia?

Hypotheses

The following hypotheses derived from the research questions will drive the study.

H1: The level of student engagement as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

H2: The level of active and collaborative learning as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

H3: The level of student effort as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

H4: The level of academic challenge as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

H5: The level of student-faculty interaction as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

H6: The level of support for learners as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

H7: The proportion of students' self-reported intention to persist as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

H8: There will be a significant relationship between the student engagement variables and students' self-reported intention to persist at small community colleges in Virginia.

Overview of Methodology

This quantitative study employed a descriptive cross-sectional, static-group design. The pencil-and-paper Community College Student Report (CCSR) 2005 questionnaire was used to collect information on the five student engagement variables identified by the Community College Survey of Student Engagement (CCSSE). The cross-sectional design was the best method for the study because the purpose of the design was to “describe trends across all groups and to identify any differences among the subgroups” (Fitzpatrick, Sanders, & Worthen, 2004, p. 317). Occupational-technical and transfer students who took The CCSR in spring 2005 at the 13 small Virginia community colleges identified in Table 6 were the subjects of this study.

Limitations

The validity and reliability of a measurement instrument are of utmost importance to the researcher (Gay & Airasian, 2000), and limitations of this study follow. Construct

validity addresses what the test truly measures and tops the list of Gay and Airasian's validity concerns. In an overview of the CCSR psychometric properties, Marti (n.d.) identified two limitations of the factor analysis conducted for the CCSR:

1. The survey was not designed to measure a set of latent constructs defined *a priori* (p. 13). That is, specific items were not designed up front to load on a particular latent construct, making it harder to establish the best number of factors underlying the set of items. This was particularly true since engaged students could be engaged across more than one latent construct.
2. In classical uses of factor analysis, such as IQ tests, one agent controls the practices being assessed. In the CCSR, students, faculty, and the institution itself impact aspects of engagement being measured. For example, a student might be willing to rewrite papers a number of times but may not be taking a class where papers are assigned. The score related to the benchmark is confounded by the multiple agents impacting the measurement. Thus, one cannot "assume that conceptually related items will be empirically related" (Marti, p. 14).

Another limitation could be that the final CCSSE benchmarks deviated from the nine-factor confirmatory factor analysis (Marti, n.d.). A Technical Advisory Panel reviewed the results of the confirmatory factor analysis and reliability tests. Coupled with their own expert judgment, the Panel also took into account empirical evidence about student engagement in undergraduate education. Marti (n.d.) stresses that CCSSE's goal was to create benchmarks that were "reliable, useful, and intuitively compelling to community college educators" (p. 14), but one would have to ask whether a different panel of experts might have tweaked the factors differently, eliciting different results.

Internal validity may be affected by subject effects in two areas: (a) subjects may not respond candidly and instead give the answer they think they should give, and (b) students self-report their intention to persist. To address the former, CCSSE does include a number of questions about the same topic asked in different ways which would hopefully diminish subject effects. With regard to self-reporting intention to persist, whether the student actually takes classes within the next 12 months or follows through on his stated intention not to return will be unknown. Interpretations of the results as they apply to persistence are based on an assumption that students actually do what they say they will do. The literature would indicate that such an assumption is frequently false.

Two initial concerns about the sample were: (a) whether the sample would include a disproportionate number of students in either occupational-technical programs or transfer programs and (b) that students who may have only been at the college for one semester would have had fewer opportunities to become engaged than participants who had been enrolled for a longer period of time. The effect of these extraneous variables was minimized through the random selection of participants, the controlled environment in which the responses were made, and the provision CCSSE put in place for nonparticipation which guaranteed an excellent response rate.

External validity as measured by the generalizability of the results of the study is limited to the 13 small colleges in the Virginia Community College System, i.e. colleges with no more than 4,499 students (headcount). However, college cultures, the number and quality of support services/activities offered, and other environmental factors differ among the colleges included in the study and could impact levels of engagement at individual colleges.

Conclusion

Education is valued for its economic and societal benefits to both individuals and communities. In today's global economy, some postsecondary education is required to gain marketable credentials or qualifications needed to be competitive in the workplace (Carnevale & Desrochers, 2004; Grubb et al, 1997; McClenney, 2004; SCHEV, 2003b). Even though educational attainment has a direct correlation to unemployment rates and lifetime earnings (AACC, n.d.c; A. Fletcher Mangum Consulting, 2003; U.S. Department of Labor, 1999, 2002, 2006), national average retention rates portray the challenge all colleges face, particularly community colleges, to improve graduation rates (ACT, Inc., 2005).

Of those who enter higher education, 45% of first-time college freshmen enter through the open doors of community colleges (AACC, n.d.c; AACC & ACCT, n.d.). However, ACT, Inc. (2005) found in 2004 that only 29% of community college students completed their associate degree in three years or less. Of the 1995-1996 incoming community college students who aspired to a certificate or degree, only 25% actually earned the credential by 2001 (ACE, 2003). Both the Community College Survey of Student Engagement (CCSSE) (2004) and the National Center for Education Statistics (NCES) (2003) found that far more students began their education at the community college with the intent to transfer to a four-year institution than the number of students who actually transferred. Bailey (2003) found that fewer than 10% of students who began their education in two-year colleges ever completed a bachelor's degree.

Examining why so few students attain their stated educational goal is important to quality-of-life issues for the students themselves, to the colleges that care about student

success and whose funding is tied to enrollment, and to communities which depend on an educated workforce to attract business and industry. As indicated by the literature, students' engagement or involvement with their educational institution and program of study is a major contributor to persistence and graduation (Astin, 1977, 1984, 1993; Barefoot, 2003; CCSSE, 2005a; Pascarella & Terenzini, 1991; Tinto, 2002a, 2002b, 2003).

CHAPTER II

REVIEW OF LITERATURE

America makes many promises, and among her most important are equity and opportunity for every individual (McClenney, 2004). In a global economy, opportunity is more and more a function of education (AACC, n.d.c; Carnavale & Desrochers, 2004; Kuh, Kinzie, Schuh, Whitt & Associates, 2005; McClenney, 2004), and community colleges provide that opportunity to 11.6 million students (AACC, n.d.c). With their average annual tuition of \$2,191, public community colleges provide a low-cost postsecondary education alternative that is particularly important to low-income students and students who want an economical alternative to the first two years of a four-year college education. Providing equal access to education is the mission of the community college (Cohen & Brawer, 2003). Keeping students in college, however, is a challenge all colleges face—particularly community colleges.

This extensive review of the literature provides information in five areas important to the study. First, an introduction to community college students is provided. Second, community college students' enrollment goals, with particular emphasis on transfer as a goal and obtaining occupational-technical skills as a goal, is explored along with the third area, students' goal attainment success rates. The fourth area of the review provides an overview of theories related to student departure and student risk factors. The fifth section of this chapter explores theories related to improving retention and completion, primarily focusing on student engagement as measured by active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners.

Community College Students

Community colleges, with their open-access policies and lower fees, enroll 46% of all U.S. undergraduates and 45% of first-time freshmen (AACC, n.d.a). AACC's list of notable alumni include chief executive officers, congressmen, Pulitzer Prize-winning authors, professional athletes, actors and actresses, governors, judges, musicians, Rhodes Scholars, fashion designers, and astronauts. However, community college students are a diverse group of students and represent differing capacities for achieving their goals. In addition to serving the best and brightest, community colleges provide postsecondary educational opportunity to students who did not perform well in high school; who must acquire basic math, reading, and writing skills before pursuing college-level course work; who cannot, or are not ready to, leave home; and who are undecided about what they want to do (Grubb, 1999). Of community college students in 1995-1996, 19% already had a postsecondary degree or certificate, and 1% had a bachelor's degree or higher. The most recent profile of community college students indicated that the average student age was 29, with 25% being 35 or older (AACC, n.d.c). Additional characteristics follow:

- 58% were women; 42% were men
- 62% attended part time; 38% attended full time (12+ credit hours)
- 45% were first-generation college students
- 41% were members of minorities
- 43% worked full time
- Over 30% of full-time students also worked full time
- 37.8% received financial aid

Among community college students are “temporary” and reverse transfer students. Some are needier than others. Adelman (2005) presented the traits of these groups of students in light of findings from the National Education Longitudinal Study of 1988 (NELS:88/2000).

Four-year “drop-in” students. These students started somewhere other than a community college (usually a four-year institution) and typically earned fewer than 10 credits from the community college (Adelman, 2005). The drop-ins tended to be high achievers, with 87% going on to earn bachelor’s degrees. This rate is 20% higher than students who started in four-year institutions.

Swirlers. Of the students who started elsewhere, 28% were four-year students who alternated their enrollment between four-year institutions and the community college (Adelman, 2005). Over half of this group earned more than 30 credits from community colleges, but only 56% earned a bachelor’s degree—a rate 10% lower than students who started in four-year institutions (see also Adelman, 2006).

Reverse transfers. True undergraduate reverse transfers are students who started somewhere else and then enrolled in the community college (Adelman, 2005). Poor academic performance and credits earned at the four-year institution, lower rates of continuous enrollment, and higher rates of course withdrawals and repeats are more prevalent among these students than among students who started at the community college. Only about 17% of these students in the NELS:88/2000 study attained an associate’s degree. Adelman posits that four-year institutions and community colleges should jointly monitor and advise reverse transfer students.

A new generation of first-time college students brings with it backgrounds, experiences, and expectations different from those students of a decade ago (Miller, 2005). Students are much more likely to come from single-parent homes. They are also more likely to need or make use of counseling services, more adept at using technology, and more group centered than their predecessors.

A Comparison of Community College Students and Baccalaureate Students

Bailey, Leinbach, et al. (2004) compared the characteristics of community college students with students pursuing a baccalaureate degree at a four-year institution. Community college students were more likely to be female, older, and from a minority population than baccalaureate students. The research also indicated that community college students are more socioeconomically disadvantaged as measured by household income, parents' level of education, and being single with a dependent. Community college students were much less likely than baccalaureate students to have pursued a rigorous academic program in high school and far more likely to have pursued vocational studies. Both high school class rank and standardized test scores in reading and math were lower for community college students than students pursuing a baccalaureate degree. With regard to enrollment patterns, Bailey, Leinbach, et al. found that community college students were much more likely than baccalaureate students to delay entering postsecondary education by at least a year after finishing high school and more likely to attend part time. Among students who worked, community college students were much less likely than baccalaureate students to identify themselves as students as opposed to workers.

Summary and Critique

Providing equal access to education is the mission of the community college (Cohen & Brawer, 2003), and community colleges provide that access to 46% of all U.S. undergraduates and 45% of first-time freshmen (AACC, n.d.a). Educational opportunity brings with it educational challenges, and a challenge to community colleges is the immense diversity of the students they enroll—students representing a wide array of academic capabilities and psychosocial needs. Much of the research on student success and goal attainment is based on students in four-year institutions, but the characteristics and backgrounds of community college students differ from the characteristics and backgrounds of typical students at a four-year baccalaureate institution (Bailey et al., 2004). Effective practice requires that educators know the students attending their institutions in order to better discern how to help students attain their educational goals.

Students' Enrollment Goals

As could be inferred from the diversity of community college students, the students who enroll in community colleges enroll with different goals (ACE, 2003; Bailey, Leinbach, et al., 2004; Bean, 1990; CCSSE, 2004; NCES, 2003; Tinto, 1993). AACC (n.d.c) found that 6.6 million of the 11.6 million students enrolled take courses for credit, but many community college students enter college with no goals, or unrealistic goals, and are experimenting in an effort to clarify their plans. The students who were the focus of this study were enrolled in a certificate, diploma,² or associate degree program for either the purpose of acquiring occupational-technical job skills or of transferring to a four-year college or university to attain a bachelor's degree. A study completed in 1994

²Diploma programs are not addressed separately in the literature, but diploma programs are occupational-technical programs at the community college.

by the National Center for Education Statistics found that 22% of postsecondary students were seeking an associate's degree, and they were evenly split between academic and vocational majors (Levesque, Lauen, Teitelbaum, Alt, & Librera, 2000).

National studies have produced similar findings regarding community college students' goals. The 1999-2000 National Postsecondary Student Aid Study (NPSAS:2000) found 14% of first-year community college students were enrolled in a certificate program; 75% were enrolled in an associate's degree program, and the remaining 11% were not pursuing an undergraduate degree (Hoachlander, Sikora, & Horn, 2003; see also Bailey, Leinbach, et al., 2004). The 1996/01 Beginning Postsecondary Students Longitudinal Study (BPS:96/01) findings were similar (Hoachlander et al., 2003). The BPS:96/01 study found that women were more likely than men to report a goal of attaining a certificate or degree (25% vs. 16%), but men were more likely to indicate transfer to a four-year institution as a goal (42% vs. 33%). Asian students were more likely than both White and Black students to state transfer as their intention (61% vs. 37% and 28%, respectively).³ Of beginning students reporting their degree expectations, 11% expected to attain a vocational certificate, 49% expected an associate's degree, 25% expected to transfer and attain a bachelor's degree, and 16% expected no formal credential. When asked as part of the BPS:96/01 their primary purpose for enrolling, 23% of the students at community colleges were enrolled to acquire job skills, 58% were seeking a credential or transfer, and 19% were enrolled for personal enrichment/other. However, 78% of the 23% of students who cited "job skills" as their purpose for enrolling also expected to obtain a degree or to transfer. Students

³BPS:96/01 abbreviates racial/ethnic group categories. Black includes African American, Asian includes Pacific Islander and Native Hawaiian, and Hispanic includes Latino. Race categories exclude Hispanic origin unless specified (U.S. Department of Education, 2003).

over age 24 were less likely than younger students to report that their purpose for enrolling was to transfer to a four-year institution.

Graduation rates are confounded by students' enrollment goals. Of the 1995-1996 incoming community college students who aspired to a certificate or degree, only 25% actually earned the credential by 2001 (ACE, 2003). However, ACE asserts that for many students attending community colleges, program completion is not a goal, and approximately 31% of students who enter transfer to another institution before completing their program of study (see also Hoachlander et al., 2003). Tinto (1993) posits that transfer before completing an associate's degree is the intended goal of many students, and sometimes transfer becomes a goal after enrolling due to very positive academic and social experiences at a community college. Bean (1990) and Tinto (1993) mirror the confounding effects of students' goals on graduation rates.

Helping to make students' aspirations a reality is a challenge. The Community College Survey of Student Engagement (2003a) found that students of color typically express higher aspirations than their White counterparts. Advising for the following groups of students should integrate goal-setting: (a) students with fewer than 30 credit hours, (b) students who have not decided on a major, (c) female students (who typically out-perform males, but have lower aspirations than males), (d) first-generation students (who are generally more job-oriented and less focused on academic performance), and (e) high-risk students who typically do not think in terms of transferring to a four-year college or university.

Selecting a college major is often a complex process involving many contributing factors. Approximately 75% of college students experience uncertainty about their

college or career goals, and that uncertainty usually mounts in the first two years of college (Tinto, 1993). Findings from studies reported by Pascarella et al. (1999) indicated that community college students who initially planned to attain a bachelor's degree were between 20% and 30% more likely to lower their degree aspirations by the second year of college. This was true even after controlling for pre-college plans, demographic characteristics, hours worked, academic load, grades and types of courses taken. Further, the likelihood of students lowering their goal to below bachelor's degree attainment was 60% higher for students who entered a community college than it was for students who started at a four-year institution.⁴ Even though community college students face obstacles when transferring to four-year institutions such as getting accepted, transferring credits, finding housing, and obtaining financial aid, Pascarella believes research is warranted on the psychosocial environmental factors in community colleges that might contribute to students' lowering their educational goals.

For traditional college students, uncertainty about college or career goals should not only be expected but also desired as the student develops and matures (Tinto, 1993). The research indicated that family background, particularly socioeconomic status, played a primary role in first-year students' selection of a major, but family background was not as great a factor in the decision to change majors later (Williams, Leppel, & Waldauer, 2005). While uncertainty does not automatically lead to departure, prolonged career indecision was much more prominent among student leavers than student persisters (Tinto, 1993).

⁴Clark's (1960) "cooling out" theory suggests that community colleges lower students' aspirations by tracking nonwhite, working class, and lower-middle-class students away from bachelor's degrees. Pascarella (1999) cites evidence to support the "cooling out" theory. See also Karabel (1972).

Davies and Guppy (1997) studied the characteristics of students and the majors they pursue in college, and Williams et al. (2005) reexamined and substantially corroborated the Davies and Guppy study. Davies and Guppy based their study on the Survey of Beginning Postsecondary Students (BPS) who would have entered college in 1989-90, and Williams et al. used the National Longitudinal Survey of Youth that interviewed individuals aged 28 to 35 years old in 1993, the majority of whom had already completed their education. Table 7 presents the college major groupings used in each database (Williams et al., 2005).

Table 7

Mean Monthly Income by Major in the National Longitudinal Survey of Youth (NLSY) and Beginning Postsecondary Students (BPS)

Major Grouping in NLSY	Major Grouping in BPS	Mean Monthly Income
Engineering	Engineering	\$3,508
Agriculture & Forestry	Agriculture	\$3,273
Economics	Economics	\$2,977
Mathematics & Statistics	Mathematics	\$2,947
Business & Management	Business & Management	\$2,780
Other	--	\$2,639
Biology	Biology	\$2,627
Physical & Earth Sciences	Physical Sciences	\$2,559
Liberal Arts/Humanities	Liberal Arts/Humanities	\$2,239
Psychology	Psychology	\$2,196
Social Sciences	Social & Behavioral Science except Psychology	\$2,118
Nursing & Health Technologies	Nursing	\$2,056
English & Journalism	English & Journalism	\$2,041
Education	Education	\$1,882
Home Economics	Home Economics	\$1,484

In addition to family background, Williams et al. (2005) identified the following contributing factors to selecting a major:

- The older the student, the more likely the student is to choose a major in a higher paying field.
- Males are more likely than females to choose a higher income major.
- Students from low socioeconomic statuses gravitate toward higher-income majors but may be discouraged from selecting those majors because of inadequate math and science skills.
- Students from high socioeconomic status families and families with more cultural resources are more likely to select a major based on “perceived satisfaction” and lower paying majors.
- Academic ability is positively associated with selecting more lucrative majors.
- While there are no significant associations between race and ethnicity for African Americans and Hispanics and selection of major, Asians generally choose higher paying majors.
- Mothers’ occupation is more significantly associated than fathers’ occupation with children’s choice of major. However, children of executive-professional mothers choose lower paying majors than do children of executive-professional fathers (see also Astin, 1993; Hoachlander et al., 2003).

Implications of the findings relative to funding education and to recruiting and advising students into different majors should be noted by those in higher education (Williams et al., 2005; see also Astin, 1977). Research by Bailey, Jenkins, et al. (2005) indicated that low-income students typically have lower aspirations than other students because of their lack of self-confidence and little previous success in school. Advisors and counselors need to be less willing to accept these limited goals (Bailey, Jenkins, et al., 2005).

A Comparison of Student Characteristics by Educational Goals

Students who major in academic programs (as opposed to occupational-technical programs) tend to have parents with higher levels of education, and approximately 64% of sub-baccalaureate⁵ students majoring in academics are women (Bailey, Kienzl, & Marcotte, 2004; Hoachlander et al., 2003; Levesque et al., 2000). Based on educational goals, Bailey, Leinbach, et al. (2004) compared community college students in occupational majors with students pursuing academic majors and to students pursuing a baccalaureate degree at a four-year institution. On most measures, community college students with an academic major were found to lie somewhere in between baccalaureate and occupational students. Many of the characteristics associated with students in occupational programs are identified with lower rates of postsecondary completion. Specific characteristics follow:

Gender and ethnicity. Occupational students were more likely to be male than female (64% versus 54%); more likely to be minorities (39% versus 32%), and more likely to be older—age 24 or older (55% vs. 46%) (Bailey, Leinbach, et al., 2004).

Socioeconomic status. Occupational students were more economically disadvantaged than academic students as measured by dependent students' household income (\$42,241 versus \$47,385), parents' education (41% versus 49% with a minimum of an associate degree), and single with a dependent (20% versus 12%) (Bailey, Leinbach, et al., 2004).

Educational background. Occupational students were almost equally as likely as academic students to have taken a rigorous academic curriculum in high school (16%

⁵Sub-baccalaureates include public 2-year institutions (community colleges); public less-than-2-year institutions (vocational-technical institutes); and private, not-for-profit 2-year institutions (all private, not-for-profit less-than-2-year institutions (Levesque et al., 2000)

versus 15%) or a non-focused curriculum (14% versus 13%), but occupational students were more likely to have pursued a vocational focus (19% versus 11%) (Bailey, Leinbach, et al., 2004). Occupational students were less likely than academic students to rank in either the top quartile of class rank (19% versus 22%) or highest quartile of standardized test scores for math and reading (11% versus 14%). While occupational students were less likely than academic students to have taken a remedial course in college (20% versus 23%), Bailey, Leinbach, et al. (2004) surmised that this could indicate lower academic requirements in occupational programs.

Enrollment patterns. Occupational students were more likely than academic students to delay their entry into postsecondary education after high school by more than a year (53% versus 42%) and were slightly less likely to attend full time and on a full academic year basis (28% versus 31%) (Bailey, Leinbach, et al., 2004).

Enrollment goal. Attaining a certificate or degree was the primary goal of enrollment for both occupational and academic students (36%) (Bailey, Leinbach, et al., 2004). However, over twice as many occupational students as academic students (33% versus 15%) responded that attaining job skills was a primary reason for enrollment. Only 15% of occupational students cited transfer as a goal compared to 31% of academic students. When occupational students were grouped by age, Bailey, Leinbach, et al. (2004) found that older students were less likely to indicate certificate/degree attainment and transfer as a goal and more likely to indicate job skills as a goal.

Transfer as a Goal

Most community colleges offer transfer programs in which students can earn the first two years of their bachelor's degree and then transfer to a four-year institution to

complete degree requirements. The Community College Survey of Student Engagement (CCSSE) 2004 data showed that 74% of students surveyed intended to transfer to a four-year college or university, with 53% having transfer as a primary goal. However, only 40% of the students who enter the community college have taken the SAT® or ACT, and those who have are more likely to score in the bottom quartile on the tests. Only 10% typically score in the highest admissions test quartile (Coley, 2000).

The research, however, raises concerns about community college transfer programs and their impact on student persistence. For those who do list transfer as a goal, the low percentage of students who actually transfer and eventually get a bachelor's degree leads scholars to assume that many students are experimenting with postsecondary education and do not have a committed intention to transfer (Adelman, 2005; Astin, 1977; Pascarella, 1999; Pierson, Wolniak, Pascarella, & Flowers, 2003). Pascarella and Terenzini (1991) cited 20 years of research that showed that—"even after holding constant a variety of relevant personal, academic, and family background characteristics and when studying only students in 'college transfer' programs" (p. 641)—students who began their education at a community college were far less likely to persist in their education and obtain a bachelor's degree than students who entered a four-year institution. Minority and low-income students were even less likely to persist to baccalaureate status if they began in a community college (Astin, 1977; Brint & Karabel, 1989; Pascarella & Terenzini, 1991).

The data lend credence to concerns about transfer student persistence (Adelman, 2005; Bailey, 2003; CCSSE, 2004; Coley, 2000; NCES, 2003). The National Center for Education Statistics (NCES) found that about 50% of community college students started

with the intent to transfer to a four-year institution, but only about 25% actually transferred within six years (NCES, 2003). Using the NELS:88/2000 data, Adelman (2005) found that 38% of students who began their postsecondary education at a community college consistently said they planned to transfer, but only 36% of those students had actually applied to a four-year institution. Bailey (2003) found that fewer than 10% of students who began their education in two-year colleges ever completed a bachelor's degree.

The mission of community colleges is to provide equal access to educational opportunities (Cohen & Brawer, 2003), but there are those who argue that the low-cost alternative of community college followed by transfer to a four-year institution does not lead to the same educational and economic outcomes as the full four-year experience (Coley, 2000; Pascarella & Terenzini, 1991). Therefore, Pascarella and Terenzini argue that community colleges do not truly offer equal educational opportunity. However, Pacarella (1999) and Pierson et al. (2003) have found that community colleges develop students' cognitive proficiency at about the same rate, with equal demonstrated net changes, as four-year colleges. Further, Pierson et al. found that

. . . compared to their four-year college counterparts, students at two-year colleges showed significantly larger net gains over a two-year period in Openness to Diversity/Challenge and Learning for Self-Understanding, and significantly larger first-year gains in Internal Locus of Attribution for Academic Success. (p. 315)

Tinto (1993) acknowledged the positive role community colleges play in offering postsecondary educational opportunities to students whose academic records would preclude them from entering higher education through any other door. Many students become empowered by their positive experiences at the community college. Students expand their vision of what they can achieve, and they decide to transfer to four-year institutions (Tinto, 1993).

Transfer from the community college to a four-year institution is not necessarily easy. The State Council of Higher Education for Virginia (SCHEV) (2003a) reported a number of obstacles faced by transfer students pertinent to this review: (a) finances, age, and academic load typically put transfer students at risk; (b) transfer students may have difficulty receiving credit from the four-year institution for dual program credits; and (c) transfer students are negatively impacted when they transfer if they have prolonged their enrollment at the two-year college and earned excess credits beyond those needed to complete the degree. Transfer is an important mechanism for increasing enrollments and graduation rates in bachelor's degree programs, particularly for underrepresented groups. SCHEV's report should serve as a foundation for future policies that will enhance the success of transfer students.

Occupational-Technical Preparation as a Goal

In a 1995-1996 National Postsecondary Student Aid Study (NPSAS), approximately 50% of all sub-baccalaureate students were majoring in a vocational field, with community colleges serving 71% of those students (Levesque et al., 2000; see also

Bailey, Leinbach, et al., 2004). Vocational students that were part of the 1995-1996 NPSAS data tended to be older, to have families, to receive financial aid, and were more likely to already have a postsecondary certificate or degree (Levesque et al., 2000). Also, vocational students typically had higher grade-point averages than academic students, with 24% of vocational majors reporting a GPA of 3.5 or more compared to 20% of academic majors. Students pursuing a vocational major tended to have parents with lower educational attainment than did students with an academic major. More women were enrolled in sub-baccalaureate programs than men (29% versus 23%), and more women than men were pursuing vocational associate degrees (12% versus 9%). Women comprised 58% of the students majoring in vocational programs; and 58% of Black students were majoring in vocational programs (see also Hoachlander et al., 2003). Of students with disabilities, there was no substantial difference between those who majored in academics and those who majored in vocational programs.

Bailey, Leinbach, et al. (2004) found students pursuing a certificate a sub-population of occupational students so unique as to be considered outliers. Of the certificate students studied, 44% of the students were minorities, and 65% were older than age 24. Certificate students had the lowest dependent student median parental income, the highest proportion of parents with a high school diploma or less, and were the most likely to be single with a dependent. Only 8% of the certificate students pursued rigorous academic programs in high school, while 23% enrolled in a vocational program, and 24% enrolled in a non-focused curriculum. Certificate students were far less likely to have done well on standardized tests in math and science, and only 10% ranked in the top

quartile of class rank. However, certificate students were the most likely (37%) to have had previous postsecondary degrees, with 8% holding a bachelor's degree. Only 20% of the certificate students attended full time and on a full academic year basis, while 64% delayed their entry into postsecondary education. A further indication of their outlier status was that certificate students' primary goal for entering was to attain job skills (48%), while 32% wanted to earn a certificate or degree, and only 4% were enrolling to transfer. Bailey, Leinbach, et al. (2004) predicted that the trend in certificate programs will be to attract students with more socioeconomic and demographic advantages since many will be returning students who already have degrees.

The major occupational program areas in both the 1995-1996 National Postsecondary Student Aid Study (NPSAS) study and the 1999-2000 NPSAS study were business and office (27%), health (26%), and technical fields [computer and data processing, 17%; trade and industry, 10%; and engineering and science technologies, 7%] (Bailey, Kienzl, et al., 2004; Levesque et al., 2000). Women primarily enrolled in business, health, and "other vocational"⁶ fields; and men dominated in trade and industry, protective services, computers/data processing, and engineering/science technologies. The largest gender gap was in engineering/science technologies where 12% of men and only 2% of women declared a major, with the ratio of male to female majors about 7:1. The top five programs at community colleges in 2004 were registered nursing, law enforcement, licensed practical nursing, radiology, and computer technologies (AACC, n.d.c).

⁶"Other vocational" fields includes cosmetology, consumer/personal services, dental/medical technology, and legal assisting, with other miscellaneous fields (Levesque et al., 2000).

Many sub-baccalaureate students in the 1995-1996 NPSAS study worked. Of vocational majors, 59% worked 35 hours or more compared to 47% of academic majors who worked 35 hours or more (Levesque et al., 2000). However, few vocational majors (about 8%) worked in jobs directly related to their coursework.

Summary and Critique

A diverse student body brings with it a variety of enrollment goals. This study focused on two groups of Virginia community college students: (a) students enrolled in occupational-technical programs leading to an Associate of Applied Science Degree, certificate, or diploma and (b) students enrolled in transfer programs leading to an Associate of Arts and Science Degree. Nationwide, a small percentage of occupational-technical program students also report a desire to transfer.

The research indicates that selecting a program of study is a complex process influenced by many factors. Family background and socioeconomic status are primary influences for first-year students but are not so important in later decisions to change majors (Williams et al., 2005). A comparison of students in occupational majors with students pursuing academic majors in community colleges indicates that occupational students are more likely to be male, to be economically disadvantaged, to delay entry into postsecondary education after high school, and less likely to rank in either the top quartile of class rank or highest quartile of standardized test scores for math and reading (Bailey, Leinbach, et al., 2004). Certificate students are more likely to be on the lowest end of the preparedness continuum. As would be expected, occupational students are far more likely than academic students to list acquiring job skills as a primary goal when enrolling.

Goal Attainment Success Rates

Of concern to two-year and four-year higher education institutions across the nation is why students leave college before attaining their educational goals (ACE, 2003; ACT, Inc., 2005; Bailey, 2003; Bean, 1990; Hoachlander et al., 2003; NCES, 2003; Tinto, 1993; VCCS, 2004). The reauthorization of the Higher Education Act will include language requiring postsecondary institutions to report their certificate and degree completion rates for students who start at the institution or transfer to it (Kuh et al., 2005).

Overall Success Rates

Most postsecondary institutions in the United States are open enrollment, as are community colleges, and Tinto (2002a) posited that open-enrollment colleges typically graduate less than 30% of their students. Community college overall success rates, as measured by formal certificate and degree completion or transfer to a four-year institution, are estimated at 50% to 60% for students who enroll with the intention to earn a credential or transfer (Hoachlander et al., 2003). The American Council on Education (ACE) (2003) found a 56% persistence and attainment rate for the 17% of community college students still enrolled after six years. Only 37% of all community college students receive an associate degree or certificate within five years of enrolling (AACC & ACCT, n.d.). ACT, Inc. (2005) found that the completion rate for associate's degrees from two-year public institutions in three years or less was 29.0% in 2004, the lowest rate since 1983 and down from a high of 38.8% in 1989. Berkner, Horn, and Clune (2000) found

that 44% of those who entered a community college in 1995-1996 had neither earned a certificate or degree 33 months later nor were they still enrolled in postsecondary education.

The graduation rates for 1998-2002 at each of the 13 community colleges in this study are presented in Table 8 (VCCS, 2005). All but one of the colleges reported graduation rates lower than 30%. Graduation rates are based on the number of students who complete their program of study within three academic years plus the following summer, or a 150% completion period.

Table 8

Small Virginia Community College Graduation Rates, 1998-2002

Name of College	Graduation Percentage Rate				
	1998	1999	2000	2001	2002
Blue Ridge Community College	22.6	20.5	27.7	28.1	25.8
Dabney S. Lancaster Community College	33.5	30.2	21.3	30.0	29.5
Danville Community College	24.7	26.3	24.8	21.7	23.2
Eastern Shore Community College	18.8	12.0	16.1	26.9	15.1
Mountain Empire Community College	20.4	20.0	18.7	13.5	17.2
New River Community College	16.9	20.4	17.9	22.2	15.2
Patrick Henry Community College	13.2	18.0	17.1	17.5	21.3
Paul D. Camp Community College	14.1	14.4	15.0	15.6	16.8
Piedmont Virginia Community College	15.6	13.5	11.4	12.2	15.2
Rappahannock Community College	18.2	15.7	12.6	22.0	20.0
Southwest Virginia Community College	18.4	24.0	23.2	19.4	18.3
Virginia Highlands Community College	26.6	21.8	18.4	17.6	19.6
Wytheville Community College	20.1	31.0	22.2	34.4	33.3

Academic and Vocational Students' Success Rates

Levesque et al. (2000) found that of students who began their postsecondary studies in 1989-1990, academic majors were more likely than vocational majors to have completed a credential within four years. Levesque et al. also found that students who concentrated on vocational studies in high school had lower postsecondary completion rates overall than their peers. However, vocational concentrators in high school who also completed a college preparatory curriculum were just as likely as college preparatory

students to earn a certificate or an associate's degree but less likely to earn a bachelor's degree. The BPS:96/01 study found that 42% of students who enrolled with the intent to earn a vocational certificate had done so by the end of 2001 (Hoachlander et al., 2003). The same study found that of those who expected to earn an associate's degree, 22% had completed the degree by the end of 2001, and an additional 8% had earned a bachelor's degree.

Using data from two Beginning Postsecondary Student Longitudinal studies (BPS:89 and BPS:96), Alfonso, Bailey, and Scott (2005) found that occupational students pursuing an associate degree completed their degree goals less frequently than their academic counterparts. Part of the reason for this completion gap was attributable to differences in student characteristics and expectations, i.e. whether the motivation for being in college was to obtain a degree or to attain job skills. If the latter was the motivation, the student could acquire the desired job skills prior to attaining the degree and see no reason for completing the degree requirements. Controlling for reasons for enrolling did not affect the persistence gap, and Alfonso et al. offered three alternative possibilities to explain the gap: (a) occupational students' weaker academic skills and being less informed than academic students, (b) differences in motivation and other unmeasured characteristics, and (c) ineffective pedagogy, advising, and support services to meet occupational students' needs.

Calculating Success Rates

Scholars recognize the difficulty of holding community colleges accountable for retention and high graduation rates within a specified period of time when so many students at community colleges attend part time, interrupt their enrollment, or do not have

completion or transfer as a goal (Bailey, Jenkins, et al., 2005; Bailey, Leinbach, et al., 2004; Hagedorn, 2004). Hagedorn (2004), in an examination of retention models as part of the Transfer and Retention of Urban Community College Students Project funded through the Lumina Foundation (Grant #1415), suggested that the most appropriate measure of retention at the community college might be a successful course completion ratio (SCCR), i.e. “the proportion or percentage of courses that a student completes as compared to the number of courses in which the student enrolls” (p. 13). Bailey, Leinbach, et al. proposed calculating the period of attendance before graduation as full-time equivalent enrollment and then designing accountability policies, such as financial aid policies, that encourage traditional attendance. Further Bailey, Jenkins, et al. proposed calculating semester-to-semester or year-to-year retention rates as additional measures of institutional performance. Yet to be determined is how students’ own measures of educational success fit with the definitions of success held by educational institutions and government funding agencies. Regardless of how “success” rates are calculated, almost every institution has in place plans to improve completion rates.

While acknowledging that accountability debates should consider students’ enrollment goals when judging the success or failure of community colleges, Bailey, Jenkins, et al. (2005) call into question the low graduation rates of minority students and low-income students. Many of these students enter the community college with higher aspirations, yet fail to make much progress. Colleges are called upon to develop appropriate strategies to close achievement gaps, but improved success rates also require supportive social and financial aid policies.

Summary and Critique

Without respect to students' enrollment goals and intent to persist, colleges are held accountable for student success as measured by graduation rates (Bailey, Jenkins, et al., 2005; Bailey, Leinbach, et al., 2004; Hagedorn, 2004; Kuh et al., 2005). Open-enrollment colleges typically graduate less than 30% of their students (Tinto, 2002a). Graduation rates at community colleges are based on the number of students who complete their program of study within three academic years plus the following summer, or a 150% completion period. While community colleges' average graduation rate of 29% for students attaining associate degrees is consistent with expectations for open-enrollment institutions, it is less than the "success story" colleges want to tell or the public wants to hear.

Simply looking at overall completion rates is insufficient if colleges are to develop strategies that improve student success. Studies have shown that academic majors are more likely than vocational majors to have completed a credential within four years, and students who concentrated on vocational studies in high school have lower postsecondary completion rates overall than their peers. Student characteristics and expectations confound graduation rates, and researchers suggest that measuring a student's success and a college's success by graduation rates alone may be superficial and worthy of further study.

Student Departure

Educational attainment is important to quality of life for individuals and communities, with postsecondary education providing both economic and societal benefits (AACC, n.d.c ; Bailey, Kienzl, et al., 2004; Brown, 1999; Grubb, 1999; IHEP,

1998; Levesque et al., 2000; A. Fletcher Mangum Consulting, 2003; Porter, 2002; Rowley & Hurtado, 2002; U.S. Department of Labor, 1999, 2006). Examining why so few students attain their stated educational goal is of national concern and is important to the students themselves, to the colleges that care about student success and whose funding is tied to enrollment, and to communities which depend on an educated workforce to attract business and industry (Bailey, 2003; Carnevale & Desrochers, 2004; Cohen & Brawer, 2003; Grubb et al., 1997; McClenney, 2004). Tinto (1993) surmised from his research that the higher one's educational goal and the more necessary educational attainment was to one's chosen career, the greater the likelihood the student would complete college.

Students' dispositions when they enroll in college relative to "intention" and "commitment" best describe the primary roots of student departure (Tinto, 1993). Student characteristics such as family background, academic ability, race, gender, and high-school academic achievement impact students' initial commitment to the institution (Braxton et al., 2000). In their research, Hackman and Dysinger (1970) noted that problems cited as reasons for student departure were problems large numbers of students who did not withdraw also shared, leading these researchers to study students' level of commitment to a college education upon enrolling in relation to persistence through the first year. Results indicated a significant relationship between the commitment of a student and his/her parents to the student's obtaining a college education and persistence through the critical first year. Hackman and Dysinger also found that students most likely to persist were those with high academic competence and moderate to high goal

commitment, and students most likely to leave were students with low academic competence and low goal commitment.

Okun, Ruehlman, and Karoly (1991) conducted a study of part-time, older, working community college students' intent and institutional persistence/departure behavior within the context of rational organizational departure investment theory. Investment theory postulates that persistence or departure from an organization is influenced by *commitment* (psychological attachment to the organization), *investment* (psychological stake in the organization), *satisfaction* (consequences of interactions internal and external to the organization), and *alternative value* (best available alternative to the current organization). Participants in the study indicated their intent to stay, intent to transfer, and intent to stop out on a 6-point scale ranging from *definitely yes* (1) to *definitely no* (6). Results showed that alternative value and college satisfaction were strong predictors of intent and that intent was strongly related to nontraditional college student attrition. Following up on the study results in the fall semester after collection of the data, Okun et al. found that students who intended to stay had a persistence rate of 71% compared to an overall institutional persistence rate of 62%. Students who intended to transfer persisted at a rate of 23%, and students who intended to stop out persisted at a 9% rate. Of students who intended to stay but who actually departed, 23% had a semester GPA below 2.00. Of students who intended to stay and who persisted, only 2% had a GPA below 2.0. However, of students carrying 12 or fewer credits, approximately 30% of students who intended to persist did not, and their leaving was not attributable to poor academic performance as 77% of these leavers had a GPA equal to, or greater than, 2.00. The Community College Survey of Student Engagement (2003a) reported that of all

students surveyed, two groups especially provide prime opportunities for retention efforts: those who say they have no current plans to return to college (5%) and those who say they are uncertain whether they will return (9%).

Interactions and Experiences

Students' interactions and experiences with the institution after they enroll also impact whether or not students persist at a particular institution (Astin, 1977; Tinto, 1993). In fact, Tinto (1993) posited that "researchers generally agree that what happens following entry is, in most cases, more important to the process of student departure than what has previously occurred" (p. 45). This is true even when considering external factors such as finances and family and work obligations. Tinto (1993) captured students' interactions and experiences with the institution within the context of adjustment, difficulty, incongruence, and isolation. Elaboration on these concepts follows:

Adjustment and difficulty. Students who cannot adjust to college life typically leave within the first six to eight weeks (Tinto, 1993). Those students who cannot meet the minimum academic standards withdraw to avoid the stigma of failure or stay until they are dismissed. Difficulty of academic work also plays a role in students' feelings of incongruence.

Incongruence. Incongruence refers to whether the student and the institution are a "fit" (Tinto, 1993). Students are continually assessing whether what they are experiencing meets their needs and interests; and, if not, students will leave. Incongruence may result from academics that are too easy or too challenging, or incongruence may result from issues relating to personal fit, such as values.

Isolation. Students who leave college because they feel a sense of isolation is common during the first semester of the first year of college, and the reasons contributing to feeling isolated are numerous (Tinto, 1993). Students may feel isolated because of a lack of interaction with others on campus and therefore never develop a sense of community or connectedness. This can be particularly true for minority students (Suarez-Balcazar, Orellana-Damacela, Portillo, Rowan, & Andrews-Guillen, 2003; Tinto, 1993) or students who only come to campus to attend class and who exert minimum effort on academic activities (see also Astin, 1977; Minkler, 2002; Tinto, 1993; Upcraft et al., 1989). Students may feel no one cares whether they stay or leave, making it easy to leave (Tinto, 1993). Individual personality may be a factor in isolation, and sometimes isolation is the result of institutional personality and how involving students find the institution.

Students at Risk

Many students at both four-year institutions and community colleges enter at risk of not completing their college education, and institutions need to be aware of the risk factors inherent in their student population if they are to provide the support at-risk students require to be successful. Some students leave one postsecondary institution for another, while other students leave the entire postsecondary system; and findings indicate that both the timing and sequencing of postsecondary education impact retention (Tinto, 1993). Delaying enrollment after high school, working off-campus, and stopping out negatively affect the likelihood of completing a bachelor's degree. Other factors impacting completion are pre-college academic achievement, residing on or near campus, availability of financial and other support services, participation in extracurricular

activities, and family socioeconomic status (Bailey, Alfonso, Scott, & Leinbach, 2004; Pascarella & Terenzini, 1991; Tinto, 1993).

Hoachlander et al. (2003) examined seven risk factors as they relate to credential attainment at the certificate, associate's degree, and bachelor's degree level: (a) part-time enrollment, (b) delayed entry, (c) no high school diploma, (d) financially independent, (e) dependents, (f) full-time employment [more than 35 hours a week], and (g) single parent. Using the Beginning Postsecondary Students Longitudinal Study 1996-2001 (BPS:96/01), students at risk were more likely to expect to earn a credential without transferring (45% vs. 26%), while students with no risk factors were more likely to intend to transfer and earn a credential (32% vs. 19%). Overall, 55% of students with no risk factors had earned a credential by 2001, while 30% of students with one or more risk factors had done so. A more detailed look at the seven identified risk factors as they relate to credential attainment is presented in Table 9, Table 10, and Table 11.

Table 9

Risk Factors Affecting Credential Attainment: Enrolled Part-Time, Delayed Entry, and No High School Diploma

	Percent (%) Attainment					
	Enrolled Full-time	Enrolled Part-time	Delayed Entry	Entry Not Delayed	No High School Diploma	High School Diploma
Certificate	9	12	13	6	18	9
Associate's						
Degree	20	12	13	19	11	16
Bachelor's						
Degree	14	6	4	16	2	11

Adelman (2006) confirmed in the National Education Longitudinal Study of 1988 (NELS:88/2000) that part-time attendance (fewer than 12 credits per semester) was, as labeled by Carroll (1989), “hazardous” to degree completion. Further, Adelman’s study reiterated the importance of getting students into postsecondary education immediately after high school graduation to improve the likelihood that students would finish a degree (see also Tinto, 1993).

Table 10

Risk Factors Affecting Credential Attainment: Financially Independent and Having Dependents

	Percent (%) Attainment			
	Financially Independent	Financially Dependent	Having Dependents	No Dependents
Certificate	15	7	14	9
Associate's				
Degree	11	18	13	16
Bachelor's				
Degree	3	14	4	12

Table 11

Risk Factors Affecting Credential Attainment: Worked Full Time (>35 hours) and Single Parent

	Percent (%) Attainment			
	Worked		Single Parent	Not a single parent
	Worked <35 hrs/wk.	> 35 hrs./wk.		
Certificate	8	13	15	9
Associate's				
Degree	20	8	19	15
Bachelor's				
Degree	14	3	6	11

Two additional studies provide insight on working students. A 1994 study by the National Center for Education Statistics (NCES) of undergraduates who worked found that students who enrolled full-time and worked only 1-15 hours per week while in school were more likely to have a Grade Point Average (GPA) of 3.5 or higher than were students who worked more than 15 hours per week. NCES also found that the more hours undergraduates worked, the more likely they were to become part-time students or to drop out completely (see also Astin, 1993). Berker, Carroll, and Horn (2003) compared working adult students (24 years old or older) based on whether they considered themselves “employees who study” or “students who work.” Six years after beginning their postsecondary education, looking only at students who intended to obtain a degree

or certificate, the differences in educational attainment for the two groups were as presented in Table 12.

Table 12

A Comparison of Educational Attainment after Six Years between “Employees Who Study” and “Students Who Work”

	Employees Who Study	Students Who Work
Had not completed a degree and were no longer enrolled	55%	38%
Completed a program	37%	44%
Completed a vocational certificate	28%	22%
Completed a bachelor's degree	2%	10%

Community College Students at Risk

That many community college students are at risk is reflected in the data presented in Tables 10-12. Confirming these findings are the work of Coley (2000) and Hoachlander et al. (2003) who used BPS:96/01 to study the same seven risk factors identified above that jeopardize credential attainment. Coley found that of students entering community colleges, 24% had four or more of these risk factors while only 4% of four-year students showed this level of risk. Horn, Malizio, Peter, and Rooney (2002) completed a similar study analyzing the seven risk factors and found that “undergraduates with children or other dependents averaged 4.3 risk factors, and single parents averaged 4.7 risk factors” (p. ix). Horn et al. (2002) found that 27% of undergraduates were parents, and 13% were single parents. Additionally, older undergraduates, more likely to have work and family responsibilities, were concentrated in public two-year colleges and

were more likely to be part-time students (see also ACE, 2003; Berker et al., 2003). At least half of the students with three or more risk factors would be expected to be noncompleters.

Students who are underprepared for college-level work are also at risk. ACT, Inc. (2004) attributed much of the reason for the 50% dropout rate at two-year institutions between the first and second year to the fact that so many freshmen are not prepared for college (see also Levitz & Noel, 1989), while Tinto (1993) only attributed 15% to 20% of student departure to academic failure. However, Tinto recognized that dropout rates are higher at two-year colleges than four-year institutions because, in keeping with their mission, two-year institutions accept so many more underprepared students. ACT called for high school *Courses for Success*, i.e. biology, chemistry, physics, and upper-level math courses beyond Algebra II, to prepare students for college and the workplace and cited that it is not only the number of such courses that is important but also the rigor of those courses. Adelman (2006) reached the same conclusions as ACT and stated that by the end of the second year of enrollment, there is a gap in credit generation in college-level mathematics between those who eventually earned bachelor's degrees and those who did not of 71% to 38% respectively (see also Hoachlander et al., 2003). The same disparity was found in a study of community college students in relation to earning an associate's degree (Adelman, 2005). African Americans were found by ACT, Inc. (2004) to be five times less ready for college biology than Native American and Hispanic Americans, with the latter two ethnic groups only about half as prepared as the total population. Responses from students of color reported by the Community College Survey

of Student Engagement (2003) showed that maintaining full-time jobs, caring for dependents, and being unprepared were “very likely” reasons to drop out of school.

A study on community college students by the National Center for Education Statistics included the findings of the National Education Longitudinal Study of 1988 (NELS:88/2000) which tracked a cohort of students from the time they were in the eighth grade in 1988 through high school and college (Hoachlander et al., 2003). NELS assessed high school academic preparation to determine how academic performance was associated with college outcomes. Students from NELS:88/2000 referenced in the study entered a community college within two years of graduating from high school. In 1988, 39% of the eighth graders in the study were at risk of dropping out of high school. Of the students from the grade cohort who enrolled in a community college, approximately 54% possessed one or more factors that would have placed them at risk. NELS community college students started their postsecondary education with relatively low proficiency test scores in mathematics and reading. Findings showed that students who were better prepared academically for college tended to complete a certificate or degree or transfer more often than students who were not academically prepared (75% vs. 54%, respectively).

Another risk factor identified by Adelman (2006) based on the NELS:88/2000 study was excessive stop-out periods. Students are considered to be continuously enrolled as long as they do not stop out for more than one semester (or two quarters), exclusive of summer terms. Continuous enrollment is part of a student’s attendance pattern, and the probability of degree completion is increased by 43% if the student remains continuously enrolled, even part-time.

Summary and Critique

The economic and societal benefits of postsecondary education are important to quality of life for individuals and communities (AACC, n.d.c ; IHEP, 1998; A. Fletcher Mangum Consulting, 2003; Rowley & Hurtado, 2002; U.S. Department of Labor, 1999). Therefore, understanding why so few students attain their stated education goal is of national concern (Bailey, 2003; Carnevale & Desrochers, 2004; Cohen & Brawer, 2003; Grubb et al., 1997; McClenney, 2004). Tinto (1993) found that students' "intention" and "commitment" to attain a college education were integral to student departure as was the level of the student's educational goal (see also CCSSE, 2003a; Hackman & Dysinger, 1970; Okun et al., 1991). Students' interactions and experiences after they enroll as measured by adjustment, difficulty, incongruence, and isolation also affect persistence rates as do external factors such as finances, families, and work (Tinto, 1993).

Students at both four-year institutions and community colleges enroll with risk factors that affect their ability to be successful in college and attain their educational goal. Seven risk factors have been studied extensively with regard to attainment of a certificate, associate's degree, and bachelor's degree: (a) part-time enrollment, (b) delayed entry, (c) no high school diploma, (d) financially independent, (e) dependents, (f) full-time employment [more than 35 hours a week], and (g) single parent status (Hoachlander et al., 2003; see also Adelman, 2006; Bailey, Alfonso, et al., 2004; Berker et al., 2003; NCES, 1994; Pascarella & Terenzini, 1991; Tinto, 1993). Coley (2000) found that students entering community colleges carry more of these risk factors than students who enter four-year institutions (see also ACE, 2003; Berker et al., 2003; Hoachlander et al., 2003; Horn et al., 2002).

That many students enter college underprepared for college-level courses is a major concern, with community colleges getting the greatest numbers of underprepared students because of their open-door admissions policies (ACT, Inc., 2004; Levitz & Noel, 1989; Tinto, 1993). Of particular concern is the gap in credit generation in college-level mathematics between those who eventually earn bachelor's degrees and those who do not (ACT, Inc., 2004; Adelman, 2005, 2006; Hoachlander et al., 2003). Students of color have been found to be the least prepared (ACT, Inc., 2004), and these students cite being unprepared as a "very likely" reason to drop out of school (CCSSE, 2003a).

Benefits of Completing College

Degree attainment is associated with higher earnings and lower unemployment rates that yield public and private economic and social benefits (AACC, n.d.c; Bailey, Kienzl, et al., 2004; Brown, 1999; Grubb, 1999; IHEP, 1998; Levesque et al., 2000; Porter, 2002; U.S. Department of Labor, 2006). The literature also supports the non-monetary individual and social benefits of postsecondary education which cannot be quantified by dollar amounts but are instead evidenced by a quality of life and values inherent in a civilized society (IHEP, 1998; Porter, 2002; Rowley & Hurtado, 2002).

Private and Public Economic Benefits

The economic benefits of postsecondary education are numerous. Private economic benefits of postsecondary education include better wages and benefits, higher levels of employment with greater consistency, greater personal/professional mobility, better working conditions, and increased savings (IHEP, 1998; see also Astin, 1977). Over the past 20 years, students participating in the Cooperative Institutional Research Program increasingly have indicated that the most important outcome of college

attendance is economic, reflecting a very superficial view of postsecondary education that is reinforced by many educators (Astin, 1993). Public economic benefits of higher levels of educational attainment include greater tax revenues, increased consumption, higher workforce productivity and flexibility, and less reliance on government assistance.

Private and Public Social Benefits

The social benefits of postsecondary education also abound. Private social benefits include better access to health care, longer life expectancy, better quality of life for offspring, more leisure time, more knowledgeable consumer choices, and increased personal status (IHEP, 1998). A study by Rowley and Hurtado (2002) found that postsecondary students tended to be more open minded, more cultured, more rational, more consistent and less authoritarian, with students passing along these attributes to their children. Public social benefits include a better leadership pool for communities, increased philanthropy and volunteerism, greater civic engagement, lower incarceration rates, greater social cohesion and appreciation of diversity, better adaptation and use of technology, and lower public health-care costs (IHEP, 1998).

Benefits of Community College Education

Most of what has been written about the benefits of a community college education per se centers on economic benefits—how to make a living rather than how to live a life. Perhaps that is because over half of community college students enroll in vocational programs designed to equip students with the employment skills needed to compete in a knowledge-based, post-industrial society (Bailey, Kienzl, et al., 2004). According to Astin (1993), however, four-year institutions have also increased their

emphasis on the economic benefits of college education and witnessed a decline in the last 20 years of student commitment to “developing a meaningful philosophy of life” (p. 436). Astin proposes that higher education has forgotten why it valued a liberal education for all undergraduates. Faculty who teach general education classes in community colleges may or may not generate deep discussions about the meaning of life, but one only has to peruse the course requirements for certificates, diplomas, and associate degrees earned at Virginia community colleges to see that the goals of education extend beyond pecuniary rewards. The Virginia Community College System *VCCS Policy Manual* (1997) requires the general education credits presented in Table 13 for associate degree programs. General education credits for certificate and diploma programs vary by program area, but some general education credits are required for all programs.

Table 13

VCCS Associate Degree General Education Credits

	Associate of Arts and Science Degree	Associate of Applied Science Degree
English Composition	6	3
Humanities/Fine Arts	6	3
Social/Behavioral Sciences	12	6
Natural Sciences	8	3 credits in either Natural Science or Mathematics
Mathematics	6	
Wellness	2	2
Student Development	1	1

The arguments for the economic benefits of community college education are mixed based on the level of the credential earned, gender, race, and age (Bailey, Kienzl, et al., 2004; Bryant, 2001; Lin & Vogt, 1996). Research indicates that the individual economic benefits of college *attendance* are reduced compared to the individual economic benefits of college *completion*, but there are even exceptions to that precept at the community college level (AACC, n.d.c; Bailey, Kienzl, et al., 2004; Grubb, 1999; IHEP, 1998; Levesque et al., 2000; Lin & Vogt, 1996). Bailey, Kienzl, et al. (2004) found that students who completed any postsecondary coursework, even if they did not earn a credential, enjoyed some economic benefit, but men benefited more than women. While Levesque et al. (2000) found that both rates of employment and labor force participation rose with educational attainment, the researchers found no substantial difference between the levels of employment for vocational and academic majors when those students were no longer enrolled in college after four years. Findings did show, however, that students who had attended private, for-profit institutions were less likely to be employed. Levesque et al. hypothesized that perhaps these institutions either did not prepare students as well as other institutions, or they enrolled more students who were underprepared than did other types of schools.

Studies show that completing an associate's degree is superior to attending a four-year institution without earning a degree. A study by the National Library of Education (1999) found that students who graduate with an associate degree are better off financially than students who leave a four-year institution with two years of college. Grubb (1999) found that females with an associate degree earned as much or more than similar females with three years of college, regardless of the college where the three

years were obtained. Grubb emphasized the importance of examining these results in terms of program of study as there were both “sheepskin effects” and “program effects” for both males and females at both four-year and two-year institutions. Levesque et al. (2000) noted similar effects and the incumbent disparity in incomes between those with more and less education (see also Bailey, Kienzl, et al., 2004; Carnevale & Desrochers, 2004).

Levesque et al. (2000) found that students who had earned only postsecondary certificates had similar earnings and unemployment rates to their peers with no postsecondary certificate (see also Bailey, Kienzl, et al., 2004). However, Bailey, Kienzl, et al. found that certificate completion did increase women’s earnings but produced no significant economic benefit for men (see also Grubb, 1999). Associate’s degrees, on the other hand, had significant economic benefits for both men and women, and were more beneficial to vocational students than academic students (Bailey, Kienzl, et al.; Levesque et al.). The occupation, therefore, was more frequently a determinant of earnings than the level of the degree, particularly when sub-baccalaureate degree holders found jobs in fields related to their degree (Carnevale, 2000; Grubb, 1999).

In reviewing the research on the economic benefits of community college education, Bailey, Kienzl, et al. (2004) found that special populations accrue economic benefits of postsecondary education differently, as follows:

Age. Younger students (under 24) who earn postsecondary course credits realize more economic benefits than older students. In fact, younger female students who obtained an associate’s degree earned 37% more than those without postsecondary education, and young men with certificates or associate’s degrees earned more in the long

term than persons with only a high school diploma. Older men and women saw no economic benefits to having postsecondary education when comparing earnings with similar-aged persons with no postsecondary education.

Gender and race. White men earned about 38% more than Black men with similar levels of education, but the difference in earnings between Black women and White women was negligible. Women who were academically challenged benefited economically from attaining an associate's degree in an occupational program in community colleges. However, academically challenged men benefited economically by completing occupational coursework, with no additional economic benefits accruing when academically challenged men completed an associate's degree. Economically disadvantaged females (those whose family income was less than \$20,000 their last year in high school) benefited from attaining an associate's degree in occupational education at a community college. Economically disadvantaged males, like academically challenged males, benefited from completing occupational coursework, but males accrued no additional economic benefits by completing an associate degree.

Summary and Critique

Community colleges help students reap the benefits postsecondary education provides. Degree attainment is associated with higher earnings and lower unemployment rates that yield public and private economic and social benefits (AACC, n.d.c; Bailey, Kienzl, et al., 2004; Brown, 1999; Grubb, 1999; IHEP, 1998; Levesque et al., 2000; Porter, 2002; U.S. Department of Labor, 2006). Individual economic benefits of college *attendance* are reduced compared to the individual economic benefits of college *completion* (AACC, n.d.c; Bailey, Kienzl, et al., 2004; Grubb, 1999; IHEP, 1998;

Levesque et al., 2000; Lin & Vogt, 1996). However, Bailey, Keinzl, et al. found that community college students who completed any postsecondary course work, even if they did not earn a credential, enjoyed some economic benefit, but men benefited more than women.

The economic benefits of community college education are mixed based on the level of the credential earned, gender, race, and age (Bailey, Kienzl, et al., 2004; Bryant, 2001; Lin & Vogt, 1996). However, some of the research has indicated that occupation is more frequently a determinant of earnings than the level of the degree, particularly when sub-baccalaureate degree holders find jobs in fields related to their degree (Carnevale, 2000; Grubb, 1999). Further, the research indicates that students who only complete two years of college will reap more economic benefits by attaining an associate's degree than by simply completing two years of education at a four-year institution (National Library, 1999; see also Bailey, Kienzl, et al., 2004; Carnevale & Desrochers, 2004).

Improving Retention and Completion

If a college focuses on its educational goals, retention will follow (Bailey, Calcagno, Jenkins, Leinbach, & Kienzl, 2005; Tinto, 1993). However, Tinto also recognizes that retention strategies must be institution specific and based on data that tell the institution why students dropped out or stopped out. Further, colleges must disaggregate the data by sex, race, ability, and social class and examine specific student populations with regard to leaving and retention if appropriate interventions are to be developed that effectively help students achieve their educational goals (CCSSE, 2005a; Morest & Bailey, 2005; Tinto, 1993). There is sometimes as much as a 22% gap between ethnic minority and Caucasian graduation rates, with minorities typically graduating at

the lower rate (Tinto, 1993; 2002a). Tinto found that about half of the overall difference in completion rates between White and Black students and between White and Hispanic students could be related to differences between their ability test scores and socioeconomic status.

In a comparative analysis of successful retention programs, Tinto (1993) found common elements he distilled into the following three principles of effective retention:

1. Effective retention programs are committed to the students they serve. They put student welfare ahead of other institutional goals (p. 146).
2. Effective retention programs are first and foremost committed to the education of all, not just some, of their students (p. 146).
3. Effective retention programs are committed to the development of supportive social and educational communities in which all students are integrated as competent members (p. 147).

Even though educational institutions have no control over many of the issues involved in student dropout, such as students' personal lives, Tinto (2002a, 2002b, 2003; see also Upcraft, Gardner & Associates, 1989) believes that institutions can create five conditions on campus that aid retention:

1. Expectations—Institutional commitment to increasing retention, especially among excluded groups, translates to setting *high expectations* for student success regardless of gender, ethnicity, and inherent level of student ability. Students, particularly first-generation students, must find validation as learners.

2. **Academic and Social Support**—Academic support can be provided through developmental education courses, tutoring, study groups, and supplemental instruction; and social support, through counseling, mentoring, and ethnic student centers.
3. **Feedback**—Frequent and early feedback about student performance strengthens student persistence. Feedback may occur through early warning systems, classroom assessment (reflective diaries, portfolios, one-minute papers that lead to discussion), and frequent mini-exams. (See also Kuh, Kinze, Schuh, Whitt & Associates, 2005).
4. **Involvement**—The more socially and academically involved students are, the more likely they are to persist to graduation (see also Astin, 1984; Raisman, 2002; Rendon, 1994; Tinto, 1993). Effective learning is not a “spectator sport” where faculty talk and students watch. Building educational communities that involve and connect all students, particularly in the first year of study, are critical to retention. Commuting students may only be involved in the classroom. Therefore, strategies such as cooperative/collaborative learning and problem-based learning that build a “learning community” and foster relationships with other students and faculty improve retention. Additional strategies include service learning, study groups, and formal learning communities in which a group of students take two or more courses together linked by a theme.
5. **Learning**—The more students learn, the more value they see in learning and the more likely they are to persist.

Student Engagement

Student engagement or involvement is a major theory relating to persistence and educational goal attainment. Chickering and Gamson's (1987) "Seven Principles for Good Practice in Undergraduate Education" set the standard for student engagement (see also Astin, 1984, and Tinto, 1993). Good practice requires student-faculty interaction, cooperation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse talents and ways of learning. Two key components of student engagement are (a) the time and effort students spend on activities that contribute to success and (b) the ways institutions allocate resources and organize learning opportunities and services so that students can benefit (Kuh et al., 2005).

The more socially and academically involved students are, the more likely they are to persist to graduation (Astin, 1977, 1984, 1993; Barefoot, 2003; Camarena, Saltarelli, & Lung, 2005; Gatz & Hirt, 2000; Pascarella & Terenzini, 1991; Roderick & Carusetta, 2005; Tinto, 1993, 1997, 2002a, 2002b, 2003; Upcraft et al., 1989). Astin (1977) defines involvement as "the time and effort expended by the student in activities that relate directly to the institution and its program" (p. 21). Astin (1993) found that academic involvement, involvement with faculty, and involvement with peers have tremendous potential to improve learning, academic performance, and retention. Involvement variables positively related to a student's grade point average are "tutoring other students, hours spent studying or doing homework, participating in a college internship program or a study-abroad program, hours per week spent talking with faculty outside of class, giving presentations in class, enrolling in interdisciplinary courses, and getting married" (Astin, 1993, p. 190). Further, Astin (1977) stated that student

involvement in the college environment is an indicator of the quality of the student's collegiate experience, and lack of student community is the strongest environmental indicator of overall student satisfaction with the college experience (see also Astin, 1984, 1993; Braxton, Milem, & Sullivan, 2000; Miller, 2005; Miller & Jones, 1981; Pascarella & Terenzini, 1991). Involvement requires commitment from both students and institutions. Tinto (1993) asserted the following:

If there is a secret to successful retention, it lies in the willingness of institutions to involve themselves in the social and intellectual development of their students. That involvement and the commitment to students it reflects is the primary source of students' commitment to the institution and of their involvement in their own learning. (p. 6)

Students of different ages and at different points in their educational journey engage academically and socially at different levels (Tinto, 1993). For example, traditional-aged first-year students who have left home to attend a residential institution are more interested in making friends and bonding with a social community than they are academics and interacting with faculty. Concepts related to social integration and student departure decisions include institutional type, organizational attributes, motivations for attending college, financial aid, fulfillment of expectations for college, sense of community in residence halls, student involvement, life task predominance, and self-efficacy (Braxton et al., 2000). Studies show that as students progress toward graduation, they are more involved with their academic progress and interested in intellectual conversations with faculty (Kuh & Hu, 2001b; Tinto, 1993). This may be in part attributable to getting to know instructors better in the smaller classes typical of a

student's major, the increased confidence a student has in his knowledge base, and the fact that faculty may be more open to conversations with more intellectually mature students (Kuh & Hu, 2001b). The classroom is one source of influence on social integration and persistence (Braxton et al., 2000), but whether social engagement is a developmental prerequisite for intellectual engagement and whether older students who are immersed in external obligations go through similar needs for social connections before they are ready for academic involvement have not been fully studied (Tinto, 1993). Bean and Metzger (1985) studied the attrition of traditional and nontraditional students and concluded that the chief difference between the attrition process of the two groups was that nontraditional students were more affected by the external environment than by social integration. While encouraging traditional-aged students to become involved in curricular and noncurricular activities is advisable, doing so could be both ineffective and inappropriate for overextended nontraditional students who may view anything extra as another obstacle to overcome (Helfgot, 1998).

Building a Sense of Community

Building educational communities that involve and connect all students, particularly in the first year of study, is critical to retention (Barefoot, 2003; CCSSE, 2003a; Tinto, 1993; Upcraft et al., 1989). Research shows that when community colleges lose students, they usually lose them early; therefore, engagement must occur early and often (CCSSE, 2003a). Astin (1993) discussed student community in terms of opportunities for regular socialization, contact among students outside of class, and student apathy. Students who felt a lack of student community were dissatisfied with student life on four-year campuses, and that feeling produced negative indirect effects on

satisfaction with faculty, general education requirements, and overall quality of instruction. Coley (2000) found community college students were less likely than other full-time students “to participate in study groups, to speak with faculty outside of class, and to participate in school clubs” (p. 16) and therefore had fewer opportunities to build a sense of community. Two national surveys sponsored by the Higher Education Research Institute at UCLA, Your First College Year (YFCY) and the College Student Survey (CSS), attest to the importance of community by asking students to rate their satisfaction with the sense of student community on their campuses (Astin, 1993).

Institutions can encourage involvement by creating a sense of belonging, valuing students as full members of the campus community, and acknowledging to students their need for social and psychological comfort (Kuh et al., 1991; Omatsu, 2002; Tinto, 1993). Boyer (1990) identified six principles inherent in campus community:

1. A college or university is an educationally **purposeful** community, a place where faculty and students share academic goals and work together to strengthen teaching and learning on the campus. (p. 9)
2. A college or university is an **open** community, a place where freedom of expression is uncompromisingly protected and where civility is powerfully affirmed. (p. 17)
3. A college or university is a **just** community, a place where the sacredness of each person is honored and where diversity is aggressively pursued. (p. 25; see also Kuh et al., 2005).

4. A college or university is a **disciplined** community, a place where individuals accept their obligations to the group and where well-defined governance procedures guide behavior for the common good. (p. 37)
5. A college or university is a **caring** community, a place where the well-being of each member is sensitively supported and where service to others is encouraged. (p. 47)
6. A college or university is a **celebrative** community, one in which the heritage of the institution is remembered and where rituals affirming both the tradition and change are widely shared. (p. 55)

The 1998 National Survey of College and University Presidents supported Boyer's insight into the importance of communities. Of the 385 institutions responding, 97% indicated that administrators should make a greater effort to strengthen common purposes and shared experiences, and 96% agreed with the statement, "I strongly believe in the importance of community" (Boyer, 1990, p. 65).

Formal learning communities that tie two or more courses together with a theme and collaboration between faculty members who teach in the communities are one way to build community. In a study conducted by Tinto (1997) at Seattle Central Community College, students in learning communities that incorporated collaborative learning formed peer support groups that not only increased their learning but also extended beyond the classroom and helped students deal with the struggles of getting to class and participating in class (see also Kuh, Schuh, Whitt & Associates, 1991). The study supported the importance of building smaller communities within larger institutions, particularly commuter institutions, to foster student friendships and connections with

faculty. Grades, positive view of the college, and desire to continue college despite challenges were all higher in the learning communities group than the control group.

Commuter Students

Commuter students who only come to campus to attend class, who exert minimal effort on academic activities and whose primary interest is in people and events off campus are at the low end of the involvement continuum (Astin, 1977, 1993; Minkler, 2002; Tinto, 1993; Upcraft et al., 1989). Coupling the commute with work and family responsibilities, most commuting students, particularly community college students, are on campus only to attend classes (Tinto, 1993). CCSSE (2004) found that 20% of commuting students spent between 6 and 20 hours per week commuting and that 84% of respondents “never” participated in college-sponsored activities. All community college students in the Virginia Community College System commute, and Davis and Hunter (2003) posited, based on the work of Astin, that “living on campus is one of the most significant environmental factors contributing to involvement, as residential students simply have more time and opportunity to join student organizations and participate in campus activities” (p. xi). Astin (1977) found that living in a dorm positively affects both aspirations and persistence.

Kuh et al. (1991) cited that approximately 80% of traditional-aged undergraduate students in four-year institutions participated in one or more out-of-class activities. In comparing commuter students’ responses and residential student responses on the National Survey of Student Engagement (NSSE) at four-year higher educational institutions, Kuh et al. (n.d.) found that driving commuters and residential students had qualitatively different experiences on two benchmarks: student interactions with faculty

members and enriching educational experiences. Driving commuters had less contact with instructors and did not take advantage of co-curricular activities. Upcraft et al. (1989) assert the commonalities between commuter students and nonpersisters in their lack of “involvement, interaction, and integration with the college experience” (p. 319). Therefore, involving commuter students with the campus, faculty, and other students must be intentional, and such involvement should not be considered less important on a commuter campus than on a residential campus (Chickering, 1974; CCSSE, 2004; Kuh et al., n.d.; Tinto, 1993; Upcraft et al., 1989).

Research on student engagement as it relates to persisters and leavers includes the five student engagement variables benchmarked by the Community College Survey of Student Engagement (2003a, 2004, 2005, 2005b): (a) active and collaborative learning, (b) student effort, (c) academic challenge, (d) student-faculty interaction, and (e) support for learners. Important findings relative to each engagement variable, and items included by CCSSE on The Community College Student Report to determine student engagement with regard to each variable, are presented below.

Active and Collaborative Learning

The best approach to enrollment growth capable of sustaining an institution is to retain students enrolled, and solid instruction leads to retention (Kuh et al., 2005; Tinto, 1993). “The least effective mode of teaching and learning is still the most popular at all levels of instruction: teaching by telling, learning by parroting”—didactic talk and passive recall (Elder, 1997, March 19, p. 44). Active learning guides students to deeper levels of understanding and encourages real-world application. Both learning and retention are enhanced by active learning strategies (Amenkhienan, 2004; Astin, 1993;

Braxton et al., 2000; Camarena et al., 2005; Chickering & Associates, 1981; Elder, 1997, March 11, March 19; Kolb, 1981; Kuh et al., 2005; Pascarella & Terenzini, 1991; Paul, 2004; Paul & Elder, 2000; Roderick & Carusetta, 2005; Tinto, 1993; see also Menges, 1981).

Astin (1993) characterized active learning as including activities that require students to be either “(1) actively involved or engaged or (2) required to take a good deal of initiative in enhancing their own learning” (p. 38). A factor analysis to identify items that distinguish active learning from more passive learning strategies such as lecture and reading produced the ten items contained in Table 14 (Astin, 1993). The activities and behaviors related to active and collaborative learning included on The Community College Student Report (CCSR) are (a) asking questions in class or contributing to class discussions, (b) making class presentations, (c) working with other students on projects during class, (d) working with other students outside of class on assignments, (e) tutoring other students, (f) participating in a community-based project as part of a course, and (g) discussing items from readings or classes with others outside of class (CCSSE, 2005b).

Table 14

Active Learning

	Factor Loading
Instructional technique:	
Cooperative learning (small groups)	.68
Student presentations	.64
Group projects	.63
Experiential learning or field studies	.59
Independent projects	.50
Student-selected topics for course content	.44
Class discussions	.42
Lecture	-.32
Student-developed activities (assignments, exams, and so on)	.36
Evaluation technique:	
Student evaluations of each other's work	.57

Both cooperative and collaborative learning are forms of active learning in which students work with other students in groups to solve problems or master challenging content (Braxton et al., 2000; CCSSE, 2005b). Though there are differences between cooperative and collaborative learning, Bruffee (1995) states that the differences between cooperative and collaborative learning are not that important as long as the teacher is cognizant of the institutional context, students' age and background, and objectives of the course being taught. Cooperative learning arose as a pedagogical method for primary school students, while collaborative learning with its distinct differences is considered andragogical and used in colleges and universities to pick up where cooperative learning

leaves off (Bruffee, 1995; Smith, 2002). The principle remains the same, but the emphasis changes as described below.

Cooperative learning. Students in cooperative learning groups are judged on how well they learn collectively rather than in competition with one another (Bruffee, 1995). The instructor provides guidance and monitors students to ensure they remain on task and get the right answer. How well students work in the group is part of the graded assignment.

Collaborative learning. Collaborative learning groups work to develop their own answer to a problem through interaction of group members and the process of reaching consensus (Bruffee, 1995; O’Byrne, 2003). Consensus, rather than any absolute measure, determines the correctness of the answer. Participants, not the instructor, decide on goals and activities; and the instructor neither monitors progress nor acts as an authority on what the correct answer should be (Bruffee; O’Byrne). Therefore, knowledge is socially, rather than individually, constructed; and learners experience knowledge as something that is created by the group rather than transmitted from the instructor (Imel, 1991). Collaborative learning neither eliminates nor encourages competition, but competition tends to shift from “between individuals” to “between groups” (Bruffee). Resisting the task, rebellion against the teacher, and questioning other members’ views are inevitable in collaborative learning. Collaborative learning requires learners to shift from passive to active learner roles (Imel, 1991). Learners must now discuss instead of simply take notes, must come to class highly prepared instead of moderately prepared, must learn independently instead of dependently, and must think of self and members of the group as sources of authority and knowledge instead of just the instructor. Rather than

attendance being a personal choice, students feel compelled to attend class because attendance is expected by their peers (Imel, 1991).

In active and collaborative learning, students must take more responsibility for their learning and exert more effort than with more passive forms of learning. In the process, students develop a sense of community and skills they can use to solve problems in their professional and personal lives. Roderick and Carusetta (2005) reported that additional advantages of collaborative learning include students working collaboratively even when not required to do so, better attendance, closer student-faculty relationships, students taking more responsibility for their own learning, and students learning to evaluate the quality of their own work. Students in studies conducted by both Roderick and Carusetta (2005) and by Camarena et al. (2005) reported satisfaction and personal growth as a result of problem-based and experiential learning experiences. Because students find their courses rewarding, they are more likely to become socially engaged at the institution (Braxton et al., 2000). However, Paul (2004), chair of the National Council for Excellence in Critical Thinking, posits this caution to collaborative learning:

Collaborative learning is desirable only if grounded in disciplined critical thinking. Without critical thinking, collaborative learning is likely to become collaborative mislearning. It is collective bad thinking in which the bad thinking being shared becomes validated. (§ 9)

Careful application of the “intellectual standards of clarity, accuracy, precision, depth, breadth, fair-mindedness, and logicity” are required for effective active and collaborative learning (Elder, 1997, March 19, p. 44). Elder (1997, March 11) cited the particular importance of critical thinking and disciplined “intellectual minds” for

community college students who must be able to apply reasoning skills and abilities to solve unpredictable, unforeseen problems.

Paul and Elder (2001) named thinking the most significant variable in learning and reiterated the importance of learning to think well about college course content. In fact, Bonwell and Eison (1991) define active learning as involving students in “doing things and *thinking about the things they are doing*” (p. 2; emphasis added). Asking quality questions is an important factor in thinking well and learning, and provoking questions that elicit deeper understanding and even more questions are integral to active learning (Braxton et al., 2000; Paul & Elder, 2001). Students must be taught to ask quality questions. The common student question “Will this be on the test?” is a question that implies a desire not to think (Paul & Elder, 2001).

The success of any form of active learning depends on faculty providing the proper balance between challenge and support. Most faculty members teach the way they were taught and have not been instructed in active and collaborative techniques (Elder, 1997, March 11). In collaborative learning, faculty must be willing to give up their authoritarian role and become facilitators and co-learners with students (Imel, 1991). Further, faculty must create an environment that is non-threatening and that encourages mutual respect for divergent opinions. Faculty must also prepare students for new ways of learning. Students may not always enter the course with the library research, time management, project management, conflict resolution, communication and self-management skills required to be successful (Oakley, Felder, Brent, & Elhajj, 2004; Roderick & Carusetta, 2005). Additionally, grading schemes for collaborative assignments should make it difficult for any student to get a free ride (Delucchi, 2006).

Thus, faculty development workshops that train teachers in active and collaborative learning, how to ask probing questions in keeping with Bloom's (1956) Taxonomy of Educational Objectives, and how to further develop students' critical thinking skills are much needed (Braxton et al, 2000; Elder, 1997, March 11; Paul & Elder, 2001).

Active learning strategies grounded in critical thinking principles are numerous. Some of the variables Astin (1993) found that most affected students' growth in critical thinking were "essay exams, multiple drafts of written work based on faculty critiques, number of science and history courses taken, giving presentations in class, being a guest in a professor's home, hours per week spent discussing racial or ethnic issues, enrolling in interdisciplinary courses, and receiving vocational or career counseling" (p. 226-227). Paul and Elder (2000) identified six active learning strategies grounded in critical thinking principles: having students (a) summarize, paraphrase, or elaborate on what has been said; (b) relate the issue or content to their own knowledge and experience; (c) give examples to clarify or support what they have said; (d) make connections between related concepts; (e) restate the instructions or assignment in their own words; and (f) compare and contrast points of view.

Braxton, et al.'s (2000) study included four indices of active learning, i.e. class discussions, knowledge level examination questions, group work, and higher order thinking activities. Knowledge level exam questions that require only superficial knowledge of facts rather than deep understanding of course content are negative indicators of active learning. All indices except group work were found to have a statistically significant influence on social integration, subsequent institutional commitment, and students' intent to return.

Pascarella and Terenzini (1991) referred to instruction and programmatic changes that not only increase students' active engagement in learning but also enhance dimensions of cognitive and psychosocial change, i.e. note taking (see also Austin, Lee & Car, 2004; Pardini, Domizi & Forbes, 2005), peer teaching or tutoring (see also Chi, 1996; Stewart, 2005; Tessier, 2004; Yonhong, Hartman, Uribe, & Mencke, 2001), audio-tutorial instruction, and computer-based instruction (see also Feeg, Bashatah, & Langley, 2005; Huang, Huang, Diefes-Dux & Imbrie, 2006; Perry, 1981). Further illuminating the advantage of active engagement in learning over traditional lecture, Pascarella and Terenzini (1991) submitted Smith's 1977 study that identified three types of teacher behavior that consistently and positively influenced students' critical thinking ability and incumbent analysis and synthesis behaviors: "the degree to which faculty encouraged, praised, or used student ideas; the degree to which students participated in class and the cognitive level of that participation; and the extent of peer-to-peer interaction in the class" (p. 146). Pascarella and Terenzini further cited numerous studies assessing critical thinking skills of college students over time. Results of the studies indicated that most of the improvement in students' critical thinking ability occurs between the beginning and end of the freshman year of college, with some additional gains through their senior year.

Service learning is another form of active learning proven beneficial to students cognitively and affectively (Good & Ley, 2002). In a cross-age reading program, at-risk college-level students in a developmental reading program visited elementary schools and read to the students. In preparation for the assignment, students learned four important skills: (a) how to use the library to locate age-appropriate books, (b) how to use pre-reading strategies, (c) how to generate questions about the reading material, and (d) how

to use post-reading techniques, e.g. how to construct concept maps and develop outlines, charts, and summaries. As a result of the project, students gained confidence in their own reading abilities, were more aware of pre-reading strategies and asking themselves questions while reading, participated more in class discussions and asked more questions in class, and gained an increased sense of community and desire to collaborate with other students. Many also took on the mantle of “role model” and felt a civic responsibility “to be a better person because what I do has an effect on others around me” (p. 25).

What happens in the classroom is central to student development and persistence (Pascarella & Terenzini, 1991; Tinto, 1997). Faculty contact with students inside and outside the classroom shapes learning and persistence, and faculty pedagogy shapes the classroom experience and whether or not a sense of community exists. Active and collaborative learning help to build a sense of community and provide students with both the social and academic integration they desire—social and academic integration which plays a significant role in institutional commitment and college departure (Braxton et al., 2000; Tinto, 1993).

As has been shown, affirmations of the importance of active and collaborative learning abound, but the transition from passive learning to active learning is not without its challenges. Felder and Brent (1996) cautioned that the benefits of student-centered instruction are neither immediate nor automatic. Like Bruffee (1995), Felder and Brent described rebellion, hostility, and resentment of assigned tasks as a normal part of collaborative learning, and students may even assert that they are paying “to be taught, not to teach themselves” (§ 3). Felder and Brent attributed these negative attitudes to the fact that since first grade, teachers have told students everything they needed to know.

Many students do not appreciate suddenly being asked to take more responsibility for their learning. If collaborative/cooperative learning is involved, even more resentment may be voiced about team members who do not carry their share of the responsibility or members who are slower learners and waste the group's time. Woods (as cited in Felder & Brent) observed that "students forced to take major responsibility for their own learning go through some or all of the steps psychologists associate with trauma and grief:" shock, denial, strong emotion, resistance and withdrawal, surrender and acceptance, struggle and exploration, return of confidence, and integration and success (¶ 5). Some students never get past the steps of strong emotion or resistance and withdrawal. Imel (1991) also cites numerous problems and issues with collaborative learning common in the literature: cultural biases toward competition and individualism, class structures that fail to facilitate the level of trust needed for true collaborative experiences, the difficulty of providing feedback that satisfies individual and group needs, the resistance of students to accepting their peers as sources of knowledge, the inability of instructors to relinquish their authoritarian roles, and the lack of well developed "appropriate and meaningful collaborative learning tasks" (p. 4).

Student Effort

What students get out of college is a function of what the institution offers and what students do with those offerings through their own efforts (Astin, 1993; Kuh & Hu, 2001a; Pace, 1980; Pascarella & Terenzini, 1991). The more effort students expend on activities that relate directly to the institution and its programs, the more involved students are; and the more involved students are, the more likely they are to persist (Astin, 1977, 1984, 1993). Involvement activities requiring student effort that directly

and positively relate to a student's Grade Point Average (GPA) are tutoring other students; hours spent studying or doing homework; participating in a college internship program or a study-abroad program; hours per week spent talking with faculty outside of class; giving presentations in class; enrolling in interdisciplinary courses; interacting with peers; and using the library, information technology, and cultural and performing arts venues (Astin, 1993; Kuh & Hu, 2001a).

Student effort is defined by CCSSE (2004, 2005b) as time spent on activities that improve learning and success. Those activities relate to college work in the classroom, the library, and other domains. The activities and behaviors included on The Community College Student Report (CCSR) to measure student effort are (a) preparing two or more drafts of a paper or assignment, (b) working on a paper or project that required integrating ideas or information from various sources, (c) coming to class without completing readings or assignments, (d) using peer or other tutoring services, (e) using skill labs, (f) using a computer lab, (g) number of books read (not assigned) for personal enjoyment or academic enrichment, and (h) number of hours spent in a typical week preparing for class (CCSSE, 2005b).

The behaviors that result in college success as measured by grades take effort. Not surprisingly, Astin (1993) found a positive correlation between GPA and hours spent studying and a negative correlation between GPA and working full time and partying. Likewise, Torrance, Thomas, and Robinson (2000) found a positive correlation between the multiple drafts of papers written and the grades on those essays (see also Gorrell, 1996; Reynolds & Bonk, 1996). Almost all studies of tutoring find tutoring to be beneficial to both the tutor and the tutee at the college, secondary, and elementary levels

(Chadwick & McGuire, 2004; Chi, 1996; Cohen, Kulick, & Kulick, 1982; Stewart, 2005; Tessier, 2004; Yonhong et al., 2001). Tutees typically outperform nontutored peers on examinations and possess positive attitudes toward the subjects in which they are tutored, and tutors also develop positive attitudes about the subjects they tutor and report a better understanding of the subject.

Students' expectations of college and what it will take to be successful do not always jibe with faculty expectations. Ansburg (2001) found that students believed they would spend, on average, 4.9 hours out of class per week on a three-credit course and 6-9 hours per week if the class were difficult. If the class were taught at just the right level, students expected to receive a grade of A or B as an ordinary occurrence. Faculty members typically have a general expectation that 6-9 hours of out-of-class study will occur for a three-credit course. That student expectations frequently differ from faculty expectations about the level of effort required to succeed in a course leads to student dissatisfaction, poor faculty evaluations, and faculty frustration.

Somewhat contra to Ansburg's (2001) findings, Kuh et al. (2005) found that most first-year college students *expected* to have to read and write more and work more outside of class than they actually did. These expectations mirror what faculty members believe it takes to be successful; yet, students appear able to make grades good enough to stay in school while spending less than half the time they thought they would have to spend to do well. Kuh et al. thus questioned the status of academic challenge and intellectual skills required to produce acceptable college-level work. Ansburg (2001) addressed the issue of grade inflation and students who were overcommitted with external obligations and who had adopted the metaphor of themselves as consumers rather than as apprentices. Even in

his study of students from the 1960s through the 1990s, Kuh (1999) found that students in the 1990s were exerting less effort on activities related to learning and personal development but were getting higher grades. The trend was consistent for all institutional types.

Regarding institutional responsibility, Kuh et al. (2005) asserted that if institutions implement good practices of student engagement, students will put forth more effort, i.e. they will write more papers, read more books, interact more with faculty and peers, and use technology more effectively—all of which lead to more “critical thinking, problem solving, effective communication, and responsible citizenship” (p. 9). Kuh and Hu (2001a) found that student effort, engagement, and educational gains are impacted by different types of institutions in different ways, depending on the institutions’ educational emphasis and student selectivity. Adelman (2006), using the NELS:88/2000 longitudinal study, found that the student effort required to meet the challenge of college-level mathematics, to yield a rising GPA, and to remaining continuously enrolled was linked to academic momentum, an undeniable factor in degree completion.

In a study on quality of student effort, Tinto (2003) and his staff at Syracuse University used a four-point scale (1 = low to 4 = high) to measure course effort, library usage, faculty contact, student contact, writing effort, and perceived gain. Students’ effort in a program where collaborative learning, problem-based learning, and learning communities were utilized was compared to students’ effort in a traditional classroom not using these learning strategies. The average scores on all five measures were higher for the program group, with a significant difference between groups at the .05 significance

level on all five measures. The retention rate for the program group was just over 57% compared to just over 41% for the comparison group.

In a study by Pace (1980) on quality of student effort, academic outcomes were tied more closely to student effort than by background factors such as age, sex, race, and parental education. Multiple correlations between quality of student effort scales and composite outcome factors (personal/interpersonal understanding, intellectual competencies, general education objectives, and understanding science) ranged between 0.62 and 0.68. Correlations between background variables and outcome factors only ranged between 0.14 and 0.36.

While concluding that residential students overall were more engaged than commuter students, Kuh et al. (n.d.) observed that residential and commuter students studied at four-year institutions exerted equal effort in important aspects related to what goes on in the classroom. However, Tinto (1997) found that the more involved students were both academically and socially with their peers in shared learning experiences, the more likely they were to expend greater effort on their own learning. This view is also supported by the research on the academic and social benefits of service learning (Good & Ley, 2002; see also Lally, 2001).

Academic Challenge

Academic challenge is sometimes equated with rigor, and incumbent to the discussion is both the amount and nature of the academic work, i.e. does the work stretch students “to previously unrealized levels of effort, understanding and accomplishment” (Kuh et al., 2005, p. 178). Individual colleges must decide what constitutes academic challenge based on the abilities and goals of their students and then build in the support

students need to meet high expectations for academic achievement (Ansburg, 2001; Kuh et al., 2005; Kuh & Hu, 2001a; Tauber, 1998). The activities and behaviors included on The Community College Student Report (CCSR) to measure academic challenge are (a) working harder than students thought they could to meet an instructor's standards or expectations, (b) analyzing the basic elements of an idea, experience, or theory, (c) synthesizing and organizing ideas, information, or experiences in new ways, (d) making judgments about the value or soundness of information, arguments, or methods, (e) applying theories or concepts to practical problems or in new situations, (f) using information you have read or heard to perform a new skill, (g) number of textbooks, manuals, books, or book-length packs of course readings read, (h) number of papers or reports written, (i) the extent to which examinations challenged students to do their best work, and (j) the emphasis the college placed on spending significant amounts of time studying (CCSSE, 2005b).

Institutional commitment to increasing retention, especially among traditionally excluded groups, includes emphasizing the importance of academic effort and setting *high expectations* for student success regardless of gender, ethnicity, and inherent level of student ability (Kuh et al., 1991; Kuh et al., 2005; Rendon, 1994; Tinto, 2002a, 2002b). Kuh et al. (2005) highlighted best practices from institutions involved in the Documenting Effective Educational Practice (DEEP) project at Indiana University. High expectations of both students and faculty are inherent in learning institutions and are exemplified in the best practices of DEEP institutions where academic challenge is central to student learning and quality (Kuh et al., 2005). Institutions must tell students at the outset that the students share responsibility for their learning and for helping the

institution to achieve its mission by helping to ensure a high quality of campus life (Kuh et al., 1991, 2005; see also Ansborg, 2001). Many campuses communicate that they are serious about academic achievement at new student orientations, in first-year seminars, and through common summer reading programs for new first-year students (Kuh et al., 2005). Summer reading programs emphasize not only reading but also intellectual reflection, writing, and discussion as part of membership in an academic community. As with discussions of active and collaborative learning, finding the right balance between academic challenge and student support is critical to student success.

Based on National Survey of Student Engagement (NSSE) results, students at most DEEP institutions seemingly read more both for class and for pleasure and write more than their counterparts at similar institutions (Kuh et al., 2005). A writing-across-the-curriculum approach that requires interdisciplinary effort and critical thinking is common at DEEP colleges as are writing-intensive courses. All but one DEEP college has a writing center or organized writing program. Summer reading programs and other first-year programs that may require students to read a book a week are common at DEEP colleges, and both the intensive reading and writing courses help to prepare students early in their academic careers for rigorous senior capstone courses in their major or the comprehensive examinations required of seniors.

As a society, reading and appreciation of the arts is declining. According to the Survey of Public Participation in the Arts (SPPA), conducted with 17,000 participants by the Census Bureau in 2002 for the National Endowment for the Arts (NEA) (2004), reading as a leisure activity will virtually disappear in half a century. Key findings showed that literary reading is declining among Whites, African Americans, and

Hispanics; among all education levels; and among all age groups, with the steepest decline in the youngest age groups. Literary reading strongly correlates to forms of active civic participation; for example, participating in volunteer and charity work, patronizing art museums and events, and attending sporting events. While a *Nation at Risk* warned of mediocrity taking over schools and threatening a generation of students, *Reading at Risk* warns of a culture at risk. In a study of four generations of college students, Kuh (1999) found that from 1969 to the 1990s, students' progress in appreciation and understanding of "literature, the arts, science, and values development had decreased" (p. 111).

Kuh and Gonyea (2003) found that institutions mandating high levels of information literacy that required students to use library resources worked harder than they thought they could and used higher-order thinking skills when assessing information. Critical literacy fosters academic success (Lesley, 2001). NEA national reports referenced above provide insight into why information literacy requires extraordinary effort and why remedial reading classes in colleges across the country have robust enrollments (Phipps, 1998). Yet, colleges are believed to *underreport* their remedial course enrollments because of the stigma attached to those courses. Astin (as cited by Phipps, p. 6), commented that "The underprepared student is a kind of pariah in American higher education," and acknowledging that these students are enrolled would pose a threat to perceptions of excellence.

The connection between information literacy and critical thinking is intrinsic to academic challenge (Kuh & Gonyea, 2003; see also Braxton et al., 2000; Elder, 1997, March 19, March 11; Paul, 2004; Paul & Elder, 2001). Kuh and Gonyea found that students at academically challenging institutions are "more likely to ask a librarian for

help, use indexes and databases, and make thoughtful judgments about the quality of information they receive” (§ Academic Challenge Matters). In challenging environments, students are given projects in which they must integrate ideas and apply their learning to other areas of life. High standards for academic work compel students to integrate intellectual resources (Kuh & Gonyea)—and that integration of intellectual resources with multiple college experiences focused on student achievement gives birth to wisdom (Brown, 2004).

Student-Faculty Interaction

More than any other group, faculty represent the intellectual orientations of a college or university, and students judge the “intellectual character and worth of the college experience” (Tinto, 1993, p. 53) by the quality of their interactions with faculty both in and out of the classroom (see also Astin, 1993; Chickering, 1981). Most student-faculty interactions occur in the formal academic settings of classrooms and labs—either by student choice or faculty decree (Pascarella & Terenzini, 1991), and Astin (1993) found that fewer than two-thirds of students in a longitudinal Cooperative Institutional Research Program (CIRP) were satisfied with the amount of contact they had with faculty and administrators.

A strong student-oriented faculty is positively related to affective and cognitive development of undergraduates (Astin, 1993), and there is evidence that high student persistence rates are tied to frequent contact with faculty, especially warm and rewarding contact that extends beyond the walls of the formal classroom—whether face to face or via e-mail (Kuh et al., 1991, 2005; Kuh & Hu, 2001b; Pascarella & Terenzini, 1991; Tinto, 1993). However, more important than the number of times students and faculty

interact is the quality of the interaction (Kuh et al., 2005; see also Kuh & Hu, 2001b). Meaningful student-faculty interaction that is substantive and expands application of course content beyond the classroom is not an accident; “it is expected, nurtured, and supported” (Kuh et al., 2005, p. 280; see also Kuh & Hu, 2001b). This meaningful out-of-class contact increases student effort and therefore affects students’ overall satisfaction and their gains (Kuh & Hu, 2001b).

E-mail has proven to be an effective vehicle for increasing student-faculty interaction with many different groups, including students in large classes (Murbach-Ad & Sokolove, 2002), African American students (Griffin & Anderton-Lewis, 1998), and first-generation students (Duggan, 2004). Studies indicated that e-mail communication increased instructor accessibility and provided a safe environment for students hesitant to raise a question in a large class. Griffin and Anderton-Lewis (1998) found similar advantages to using e-mail to facilitate African American student-faculty interaction in a business communications class and to collaborate with other students on group projects. In both the Murbach-Ad and Sokolove (2002) and Griffin and Anderton-Lewis (1998) studies, students elected to use e-mail communication more frequently than to visit the instructors in their offices. Duggan (2004) found that e-mail accounts had a statistically significant positive effect on first-year persistence of first-generation students.

The use of e-mail and other technologies, however, are not always positive, and perhaps not accurate, indicators of social and academic integration (Gatz & Hurt, 2000). In a study conducted by Gatz and Hurt (2000), results indicated that of over 4,603 messages received/sent in a three-week period by first-year, residential, four-year college participants during their first semester, only 8.1% were related to academic integration,

and most of these messages were initiated by faculty to remind students of assignments or clarify assignments. Gatz and Hurt posited that traditional surveys to determine academic and social integration may not accurately capture the full effect of technology on integration and persistence since the more time students are spending on e-mail and using the Internet, the less time they have to be involved in more traditional measures of student engagement.

Kuh et al. (1991) supported the importance of out-of-class student-faculty interactions to enriching student development and the academic experience (see also Amenkhienan, 2004; Pascarella & Terenzini, 1991). Institutions must recognize that faculty reward systems, student-faculty ratios,⁷ and institution-required faculty responsibilities affect the amount of time faculty have to give to students outside of class. Kuh et al. found that most student-faculty interactions outside of class were directly or indirectly related to academic activities or student concerns. The content of the interactions is important, as student-faculty exchanges limited to formal conversations about subject matter and academic performance are tied to voluntary withdrawal (Tinto, 1993). However, Pascarella and Terenzini (1991) cited studies of freshman-to-sophomore persistence positively and significantly linked to the total amount of student-faculty nonclassroom contact and concluded that the most important out-of-class student-faculty interactions were those that integrated the student's classroom and nonclassroom experiences. The net effect of student-faculty interaction on persistence, however, may vary by type of institution.

⁷Astin (1977) found that student-faculty ratio had no direct relationship to interaction. The bureaucracy of large multiversities may create impersonal institutions that discourage contact between faculty and students.

What happens in the classroom is critically important to fostering student-faculty interaction outside the classroom, particularly for commuting students whose primary contact with faculty is in that formal environment (Tinto, 1993). Rendon (1994) found that, particularly with nontraditional students, faculty validation of student work and competence in the classroom significantly impacted students' view of themselves socially and academically as well as students' future aspirations and plans (see also Omatsu, 2002; Pascarella & Terenzini, 1991; Tinto, 2002a; 2002b). Omatsu (2002), who has built his "Mentoring on the Run" program on Tinto's work, calls attention to the "little moments of mentoring" always present in the classroom which faculty can use effectively to build relationships with students.

Faculty behavior in the classroom sets the tone for not only academic performance and quality but also impacts whether students view faculty as approachable and amenable to interactions outside the classroom (Tinto, 1993; Pascarella & Terenzini, 1991). Just because the faculty member is accessible, i.e. holds office hours, does not mean the student will feel welcome to visit. Tauber (1998) adds to the mix of student-faculty interactions how faculty communicate their expectations to students in overt ways by treating students differently based on first impressions, leading to self-fulfilling prophecies of student performance.

Typically, institutions that have low rates of student retention also have low rates of student-faculty interaction (Tinto, 1993). Thus, the low rates of student-faculty interaction would not simply typify the behavior of an individual faculty member or a minority of student experiences but would instead mirror the culture of the institution itself. Conversely, institutions that foster student-faculty interactions have higher

retention rates. Kuh et al. (1991) described involving colleges as those whose faculty and staff take time for students. Personal bonds created among students and between students, faculty, and staff ties to Tinto's third principle of effective retention (Tinto, 1993):

"Effective retention programs are committed to the development of supportive social and educational communities in which all students are integrated as competent members" (p. 147).

The activities and behaviors related to student-faculty interaction on The Community College Student Report (CCSR) are (a) using email to communicate with an instructor, (b) discussing grades or assignments with an instructor, (c) talking about career plans with an instructor or advisor, (d) discussing ideas from readings or classes with instructors outside of class, (e) receiving prompt feedback from instructors on performance, and (f) working with instructors on activities other than coursework (CCSSE, 2005b). Community college students frequently tie their success to social contact with an individual on campus, particularly a faculty member (Neumann, 1985; Omatsu, 2002; Tinto, 1993), and Volkwein, King, and Terenzini (1986) found that community college transfer students' perceived quality and strength of interactions with faculty at four-year institutions was significantly associated with intellectual growth.

Support for Learners

Support for learners occurs both in class and out of class and emerges from the integration of a college's mission, philosophy, organizational structure, and steadfast focus on student learning (Kuh et al., 2005). The activities and behaviors included on The Community College Student Report (CCSR) to measure support for learners are (a) providing the support needed to succeed at this college, (b) encouraging contact

among students from different economic, social, and racial or ethnic backgrounds, (c) helping students cope with nonacademic responsibilities, (d) providing the support needed to thrive socially, (e) providing the financial support needed to afford education, (f) using academic advising/planning services, and (g) using career counseling services (CCSSE, 2005b). Astin (1993) found that students participating in the Cooperative Institutional Research Program (CIRP) expressed the lowest level of satisfaction with “all Individual Support Services: academic advising, career counseling, financial aid services, and job placement services” (p. 310).

Best practices identified through the DEEP project are relevant for community colleges as they strive to support student success (Kuh et al., 2005). Whether student support services are remedial, supplemental, or enrichment, one finds philosophical underpinnings that give rise to a broad range of services and actions designed to enhance student success. Elaboration on best practices follows.

Set high expectations and consciously think about what students should do and think at different guideposts in their college career (Kuh et al., 2005). Guideposts may take the form of first-year seminars, capstone courses, or convocations rich with symbolism and celebration of educational attainment. Examples of support to meet the individual needs of students at DEEP colleges are the use of new-student adjustment courses, faculty mentors, individualized learning plans, special programs to work with academically and economically disadvantaged undergraduate students; summer transition programs; early warning systems; using data to revise programs and practices to better serve students; extension grade contracts; tutoring; study skills workshops; study groups; regular meetings with faculty and advisors; peer mentoring; remedial courses; and

reading, writing, and math centers. However, Kuh et al. (2005) emphasize that these colleges have learned it is not enough to provide support resources; colleges must persuade large numbers of students to use them (see also Helfgot, 1998). Faculty reward systems are a part of supporting students, and DEEP institutions have met the challenges inherent in identifying and rewarding outstanding faculty and establishing respected and prestigious awards.

Share the responsibility for educational quality (Kuh et al., 2005; see also Culp, 1998; Helfgot, 1998). Intense, focused collaboration between academic affairs and students affairs occurs to ensure that the intellectual mission of the institution is reflected in student activities and that the personal and social needs of students are supported in the academic realm. Everyone on campus is considered a supportive educator—faculty, staff, groundskeepers, and presidents. Daily acts of kindness by a large number of individuals on DEEP campuses communicate to students that they are valued.

Create an environment that inspires student achievement (Kuh et al., 2005). DEEP colleges make no excuses for what their campuses do or do not have and instead “adapt their surrounding and campus environments in creative and educationally purposeful ways . . . that induce people to form strong attachments to the ‘place’” (p. 180).

Connect to the local community in ways that benefit students, the college, and the community itself (Kuh et al., 2005). DEEP colleges ask themselves whether their performance matches their potential and constantly strive to improve. These institutions use data to make decisions. They are innovative, and they are driven by faculty committed to an excellent undergraduate curriculum.

Value a diverse student body, and tailor policies and practices to meet students' academic and social needs, interests, and abilities (Kuh et al., 2005). DEEP institutions perhaps have had more success in this arena than the research would indicate for colleges overall. With regard to supporting the increasing diversity on America's campuses, particularly racial and ethnic diversity, there is work to be done (Ancis, Sedlacek, & Mohr, 2000; Nora & Cabrera, 1996; Pascarella & Terenzini, 1991; Schwitzer, Griffin, Ancis, & Thomas, 1999; Suarez-Balcazar et al., 2003). Campus environments that foster discrimination are those that have a low percentage of minority faculty and students, unclear rules and punishment for discriminatory behavior, and a paucity of initiatives to promote integration (Suarez-Balcazar et al.). African American and Hispanic students tend to have the lowest participation rates and the highest dropout rates of any other minority groups at predominantly White institutions (Nora & Cabrera, 1996). To develop and implement ethically and culturally responsive interventions, counselors must understand and be sensitive to racial-ethnic differences; perceived pressures to conform to stereotypes; whether faculty, academic supports and services are deemed inviting and accessible to minority students; and how campus climate will impact students' experiences (Ancis et al., 2000; Pascarella & Terenzini, 1991; Schwitzer et al., 1999).

Lack of support services and the nature of interpersonal relationships with faculty, peers, and staff are some of the issues that negatively impact minority students in White institutions. Most discriminatory acts reported by students in the Suarez-Balcazar et al. (2003) study were considered passive; for example, teachers not acknowledging a minority student's contribution in class and becoming annoyed with students who did value those contributions, using ethnic and racial stereotypes, and favoring one ethnic

group over another. Overt instances of discrimination were also reported in the form of racial slurs, exclusion from activities, and physical violence, with African American and Hispanic students reporting more incidences of discrimination than Asian students. Nora and Cabrera (1996) found that the higher the levels of perceived discrimination on campus and in the classroom, the lower the level of both academic and social integration (see also Pascarella & Terenzini, 1991; Schwitzer et al., 1999).

In the Nora and Cabrera (1996) report, both minorities and nonminorities recognized a negative campus climate and discriminatory attitudes held by faculty and staff, and both groups cited in-class experiences. However, minorities reported higher perceptions of prejudice and discrimination than did Whites (see also Ancis et al., 2000). Surprisingly, perceptions of discrimination in the classroom and on campus exerted an indirect effect on minorities' decisions to persist but exerted both total effects (of all variables included in the study on persistence) and indirect effects on nonminority students' persistence. Nora and Cabrera hypothesized that minorities have become desensitized to the pressures that might otherwise drive them away, while such experiences may be relatively new to White students and have a stronger influence on their decisions to persist. Perhaps integral to their persistence is the fact that minority students tend to form support networks with members of their same ethnic and racial group or other minority students (Suarez-Balcazar et al.; see also Schwitzer et al., 1999). Both African American and Latino students were found by Ancis et al. to be more comfortable than Caucasian students with both racially and ethnically similar and different faculty and students.

Minority residential students report incidences of discrimination in their residence halls and perceptions of campus racism. While findings were mixed, the most personal experiences were reported by Schwitzer et al. (1999) (see also Pascarella & Terenzini, 1991). In focus groups, African American students living in residence halls reported unwelcoming environments, unfriendly peers, residence staff who were less fair and effective when interacting with African Americans, and racial problems that were ignored by their White counterparts (Schwitzer et al.). Additionally, respondents in the study reported feeling unsupported and different and that the transition to college had been difficult because of race. That the university had separate African American and White fraternity and sorority systems that competed with one another for funding was perceived as an example of institutional racism.

Out-of-class support for learners is not limited to the individual support services referenced, such as tutoring and study groups. Out-of-class support includes all out-of-class activities and experiences, and these experiences are tremendously important to students' academic and psychosocial development. According to Moffatt (as cited in Kuh, 1993):

For about 40% of students, the do-it-yourself side of college (what took place outside the classroom) was the most significant educational experience. And for all but 10%, extracurricular learning had been at least half of what had contributed to their maturation so far in college. (p. 58)

Kuh (1993) conducted semistructured interviews to elicit what seniors at four-year institutions considered the most important things they had learned in college. The categories of learning and personal development mentioned most often were: social

competence (84%), reflective thought (72%), altruism (70%), autonomy (66%), knowledge acquisition (65%), confidence (63%), practical competence (62%), and self-awareness (60%). Least often mentioned were aesthetic appreciation (10%), vocational competence (16%), and knowledge application (25%). Kuh found the low importance of knowledge application particularly disturbing since there are ample opportunities to apply knowledge outside of class. The benefits associated with attending college were no different for students of color, those over age 23, part-time students, or those who worked more than 20 hours a week and those students who were of traditional age and White. Gender was the only significant difference and was associated with application of knowledge. Kuh attributed this difference to college environments that are less empowering for women than men. Kuh did find that the size of the institution made a difference in the frequency of certain outcomes mentioned, with students from smaller liberal arts institutions reporting more changes in intellectual and aesthetic areas.

Pascarella (1998) identified two specific actions needed to support students in community colleges:

1. Student affairs professionals and college administrators must work to raise the perception by American society of community colleges and their students as being second-class. Behaviors and attitudes of community college professionals can undermine a students' confidence to pursue educational goals.
2. Significant others, such as faculty and staff, must actively support, mentor, and encourage students to finish their first two years of college and transfer to a four-year institution to obtain their bachelor's degree if that is indeed their goal.

Colleges need to be proactive in connecting students, particularly minority and first-generation students, to support services.

Martinez and Scroggins (1998) and SCHEV (2003a) reinforce the need for colleges to support students who want to transfer. Institutions should inform students of all of their transfer options. Colleges should also assist transfer students with the paperwork involved in transferring; and collaborate with four-year institutions to align curriculum, design articulation agreements, and transitioning programs.

Summary and Critique

To improve retention and completion, colleges must focus on their educational goals and develop strategies based on the needs of a diverse student population (Bailey, Calcagno, et al., 2005; CCSSE 2005a; Morest & Bailey, 2005; Tinto, 1993). Effective retention programs focus on the welfare of all students and are committed to building supportive social and educational communities in which all students are valued (Tinto, 1993). Tinto identified five conditions institutions can create on campus to improve retention: (a) setting high expectations, (b) providing academic and social support, (c) providing students with frequent and early feedback about performance, (d) building educational communities that involve and connect all students, and (e) valuing learning that builds communities and fosters peer and student-faculty relationships.

A major theory related to persistence and educational goal attainment is that of student engagement or involvement (Astin, 1977, 1984, 1993; Kuh et al, 2005; Tinto, 1993). Astin (1977) defines involvement as “the time and effort expended by the student in activities that relate directly to the institution and its program” (p. 21). The more socially and academically involved students are, the more likely they are to persist to

graduation (Astin, 1977, 1984, 1993; Barefoot, 2003; Camarena et al., 2005; Gatz & Hirt, 2000; Roderick & Carusetta, 2005; Pascarella & Terenzini, 1991; Tinto, 1993, 1997, 2002a, 2002b, 2003; Upcraft et al., 1989).

Student involvement and sense of community are key factors in how students evaluate the quality of, and satisfaction with, their college experience (Astin, 1977). Studies show that students of different ages and at different points in their educational journey engage academically and socially at different levels (Tinto, 1993), and strategies developed to involve students appropriately and effectively must reflect these differences. Community college students, as do other commuter students, spend less time than residential students on campus and have fewer opportunities to build community. Therefore, institutional and classroom strategies to build community and student engagement must be intentional (Astin, 1993; Barefoot, 2003; Boyer, 1990; CCSSE, 2003a; Kuh et al., 1991; Omatsu, 2002; Tinto, 1993; Upcraft et al., 1989).

Intentional strategies to encourage student engagement are encapsulated in five engagement variables benchmarked by the Community College Survey of Student Engagement (2003a, 2004, 2005, 2005b): (a) active and collaborative learning, (b) student effort, (c) academic challenge, (d) student-faculty interaction, and (e) support for learners:

Active and collaborative learning. What happens in the classroom is central to student development and persistence (Pascarella & Terenzini, 1991; Tinto, 1997). Active and collaborative learning help to build a sense of community and provide students with both the social and academic integration they desire—social and academic integration

which plays a significant role in institutional commitment and college departure (Braxton et al., 2000; Tinto, 1993).

Student effort. What students get out of college is a function of what the institution offers and what students do with those offerings through their own efforts (Astin, 1993, Pace, 1980; Pascarella & Terenzini, 1991). The more effort students expend on activities that relate directly to the institution and its programs, the more involved students are; and the more involved students are, the more likely they are to persist (Astin, 1977, 1984, 1993). Students often underestimate the amount of effort college requires (Ansburg, 2001). However, Kuh et al. (2005) found that students thought college would be more difficult than it was and required less effort than they thought it would to achieve grades high enough to remain enrolled, leading both Kuh et al. and Ansburg to question academic challenge and possible grade inflation. Studies on quality of student effort conclude that student effort is higher in active and collaborative learning environments than passive learning environments (Tinto, 1997, 2003); that student effort more closely relates to student outcomes than do background characteristics; and that even though residential students are typically more engaged than commuter students, both types of students on four-year campuses tended to exert equal effort in the classroom (Kuh et al., n.d.).

Academic challenge. Setting high expectations for students and providing them with a challenging, supportive academic environment is fundamental to student engagement and success (Ansburg, 2001; Kuh et al., 1991; Kuh et al., 2001; Kuh et al., 2005; Kuh & Hu, 2001a; Rendon, 1994; Tauber, 1998; Tinto, 2002a, 2002b). Communicating expectations for academic excellence when the student first arrives on

campus and consistently reinforcing that message throughout the first year is an institutional best practice (Kuh et al., 2005). Integral to a challenging academic environment and critical thinking are rigorous reading, writing, and testing, as well as projects that require the integration of intellectual resources and application of the material learned to other areas of students' lives (Braxton et al., 2000; CCSSE, 2005b; Elder, 1997, March 19, March 11; Kuh et al., 2005; Kuh & Gonyea, 2003; Paul, 2004; Paul & Elder, 2001). Ultimately, the goal is for students to benefit from myriad college experiences that develop wisdom (Brown, 2004).

Student-faculty interaction. Faculty, more than any other group, represent the intellectual orientations of a college or university, and students judge the “intellectual character and worth of the college experience” (Tinto, 1993, p. 53) by the quality of their interactions with faculty both in and out of the classroom (see also Astin, 1993; Chickering, 1981). There is evidence that high student persistence rates are tied to frequent, substantive contact with faculty, especially warm and rewarding contact that extends beyond the walls of the formal classroom (Kuh et al., 1991, 2005; Kuh & Hu, 2001b; Pascarella & Terenzini, 1991; Tinto, 1993). What happens in the classroom is critically important to fostering student-faculty interaction outside the classroom, particularly for commuting students whose primary contact with faculty is in that formal environment (Tinto, 1993). Rendon (1994) found that, particularly with nontraditional students, faculty validation of student work and competence in the classroom significantly impacted students' view of themselves socially and academically as well as students' future aspirations and plans (see also Omatsu, 2002; Pascarella & Terenzini, 1991; Tinto, 2002a; 2002b). Faculty tone in the classroom also impacts whether students

feel faculty are approachable and whether faculty truly value students as individuals. Typically, institutions that have low rates of student retention also have low rates of student-faculty interaction that in all likelihood mirror the culture of the institution (Tinto, 1993). Community college students frequently tie their success to contact with a faculty member, and community college transfer students also credit quality faculty interactions with their intellectual growth.

Support for learners. Support for learners occurs both in class and out of class and emerges from the integration of a college's mission, philosophy, organizational structure, and steadfast focus on student learning (Kuh et al., 2005; see also CCSSE, 2005b). Best practices identified at DEEP institutions have merit for community colleges that seek to provide remedial, supplemental, and enrichment support for learners. The literature indicates that there are many opportunities to provide support to students both in and out of class (Astin, 1993; CCSSE, 2005b; Kuh et al., 2005). Out-of-class contributions to student-reported "most important learnings" lend support to the value of enrichment and supplemental learning activities (Kuh, 1993). The literature also indicates that there is much work yet to be done to support minority students and build campus cultures that value diversity, particularly the diversity represented by ethnic and racial minorities (Ancis et al., 2000; Nora & Cabrera, 1996; Pascarella & Terenzini, 1991; Schwitzer et al., 1999; Suarez-Balcazar et al., 2003). Considering the tremendous impact student-faculty interactions have on persistence, the examples of faculty discrimination are particularly disturbing. Pascarella (1998) makes two important recommendations: (a) Raise the status of community colleges in the eyes of communities and students, and (b) Encourage

students to achieve their educational goals, including transferring to earn a baccalaureate degree.

Conclusion

In a global economy, opportunity is more and more a function of education, and community colleges provide that opportunity to 46% of all U.S. undergraduates and 45% of first-time freshmen. Keeping students in college, however, is a challenge all colleges face—particularly community colleges. An intensely diverse student body with a wide array of academic capabilities and psychosocial needs challenges community colleges to provide the academic and social support services students need to be able to attain their educational goals. This study focused on Virginia community college students who were enrolled in associate degree programs with a goal to transfer to a four-year institution to attain a bachelor's degree and those who entered occupational-technical programs to attain an associate's degree, certificate, or diploma.

Regardless of students' enrollment goals and intent to persist, colleges are held accountable for student success as measured by graduation rates. Studies have shown that academic majors are more likely than vocational majors to have completed a credential within four years, and students who concentrated on vocational studies in high school have lower postsecondary completion rates overall than their peers. Educational attainment is important to quality of life for individuals and communities, with postsecondary education providing both economic and societal benefits. Therefore, understanding why so few students attain their stated educational goal is of national concern. Colleges achieve partial understanding by knowing who their students are, and community colleges know that their students carry more risk factors related to student

departure than four-year students typically do. Besides demographic and external obligations that put students at risk, many students, particularly students of color, enroll through the open doors of community colleges underprepared for college-level course work.

Degree attainment is tied to not only economic and social benefits but also to quality of life and values inherent in a civilized society, and the general education requirements in all community college programs lend credence to the fundamental philosophy of higher education that values the “whole” person. The benefits of postsecondary *attendance* versus *completion* are reduced, and students who only complete two years of college are better off completing an associate’s degree than two years at a four-year institution. However, some research has indicated that occupation is more frequently a determinant of earnings than the level of the degree, particularly when sub-baccalaureate degree holders find jobs in fields related to their degree.

To improve retention and completion, colleges must focus on their educational goals and develop strategies based on the needs of all of their students. Tinto’s model of retention includes setting high expectations, providing academic and social support, providing students with frequent and early feedback about performance, building educational communities that involve and connect all students, and valuing learning that builds communities and fosters peer and student-faculty relationships. A major theory related to persistence and educational goal attainment is that of student engagement or involvement, with involvement defined as the time and effort students expend in activities directly related to the institution and its program. Community college students, as other commuter students, spend less time than residential students on campus and

therefore have fewer opportunities to build a sense of community and engage in the activities of the institution. Intentional strategies to encourage student engagement are encapsulated in five engagement variables benchmarked by the Community College Survey of Student Engagement: (a) active and collaborative learning, (b) student effort, (c) academic challenge, (d) student-faculty interaction, and (e) support for learners. The study examined the engagement of students for whom transfer is a goal and the engagement of occupational-technical students within the context of these engagement variables.

The student engagement research reflected in the literature is rich, and much has also been written about community college students, their enrollment goals, and risk factors. However, there has been almost no research conducted on student engagement as it relates to community college occupational-technical students and transfer students. This study provides a helpful resource for community college educators and helps to fill a gap in the research.

CHAPTER III

METHOD

The purposes of this study were threefold: (a) to determine if there was a difference in the level of student engagement between occupational-technical students and transfer students in small community colleges in Virginia; (b) to determine if there were differences in levels of engagement between occupational-technical students and transfer students in small community colleges in Virginia on each of the student engagement variables benchmarked by the Community College Survey of Student Engagement (CCSSE), i.e. active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners; and (c) to explore the relationship between the student engagement variables and students' self-reported intention to persist in small community colleges in Virginia. The variables are measured by The Community College Student Report (CCSR) questionnaire which was adapted from the National Survey of Student Engagement (NSSE) (Marti, n.d.). This chapter describes the research design, the sample, instrumentation, procedure, data collection and analysis, and limitations.

Research Design

This quantitative study employed a descriptive cross-sectional, static-group design. The Community College Student Report (CCSR) 2005 questionnaire was used to collect information on the five student engagement variables identified by the Community College Survey of Student Engagement, as well as to collect additional information described in this chapter under "Instrumentation." Descriptive research, or survey research, is common in education and appropriate to determine the way things are

and to compare subgroups (Fitzpatrick, Sanders, & Worthen, 2004; Thorndike & Dinnel, 2001). The cross-sectional design was the best method for the study because the purpose of the design is to “describe trends across all groups and to identify any differences among the subgroups” (Fitzpatrick et al., p. 317). Data were collected in a single time period, and the study was a stand-alone study.

The study was conducted in two stages. Stage one covered Hypotheses 1-6, and stage two covered Hypotheses 7 and 8. The dependent variable in stage one of the study was student engagement. The independent variables in stage one were active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners. Each of the independent variables was examined to determine whether significant differences in the level of student engagement existed between occupational-technical students and transfer students. Levels of student engagement were measured for each group of students by how students rated each item in the CCSR benchmarked with the independent variable on the Likert-type response scale. The level of overall student engagement was measured for each group of students by the composite ratings of students’ responses gathered on benchmarked items in the CCSR associated with the five independent variables.

In stage two of the study, students’ self-reported intention to persist at their current community college was the dependent variable, and student engagement was the independent variable. The variables were examined to determine if there was a significant difference between occupational-technical students’ and transfer students’ intention to persist and whether there was a significant relationship between the student engagement

variables and students' self-reported intention to persist at small community colleges in Virginia.

Sample

Occupational-technical students and transfer students from 13 small Virginia community colleges who were enrolled in spring 2005 were the subjects of the study. CCSSE defines small colleges as those having no more than 4,499 students enrolled (headcount) (CCSSE, 2003b). Enrollment data reported for fall 2004 to the Integrated Postsecondary Education Data System (IPEDS) were used to determine the colleges to include in the study, and the 13 colleges are listed in Table 6. Students were asked to indicate their program or major using a code from the list provided by CCSSE through the campus representative administering the survey. The CCSSE Program Code Sheet is presented in Appendix B. The researcher compared the programs offered in each of the 13 community colleges included in the study (VCCS, n.d.b) with the CCSSE Program Code Sheet to determine whether the program option was considered by the Virginia community colleges to be occupational-technical, transfer, or whether the code mixed programs from the two categories. The CCSSE code book identified the program code as major. The researcher reviewed the responses coded for major in each of the 13 Institutional Report 2005 data files for the community colleges included in the study, and the codes are presented in Appendix C along with whether the program classification was considered to be occupational-technical, transfer, or mixed. Survey responses were not included in the study when the major was from a program that mixed occupational-technical and transfer programs. Also, responses from students who selected a code that did not match any programs offered by their college were excluded from the sample if the

researcher could not determine whether the program would be considered transfer or occupational-technical. These programs are labeled as “no major” in Appendix C.

Students surveyed were enrolled in classes drawn by CCSSE from a stratified random sample of each college’s classes. Colleges submitted a Course Master Data File to CCSSE that contained the name of all courses meeting the CCSSE criteria that were offered during the survey term. In addition to the name of the course, the data file contained the start time, start date, end date, and actual enrollment for each course. From this data file, CCSSE pulled a random sample of classes stratified by start time to ensure that the sample was representative of morning, afternoon (noon to five), and evening classes. Time of day was the only stratification; therefore, a student could be asked to take the survey more than once. Question 3 of The CCSR asks the student if he/she has taken the survey in another class and allows CCSSE to track the number of students who complete the questionnaire more than once.

The target sample size for each college was based on enrollment category; and for fall 2005, CCSSE used IPEDS enrollment data for fall 2003 to determine the sample size. The maximum target sample size for small community colleges was 600, and all but 2 of the 13 colleges included in the study had 600 surveys as their target. CCSSE planned for non-participation by providing each college with 160% of its target sample size. In the 2005 administration of the CCSR, CCSSE targeted a sample size of 7,378 for the 13 small community colleges in Virginia included in the study. The actual number of surveys collected from the 13 colleges was 6,030, approximately 82% of the target. Only credit courses with a scheduled meeting time on a college campus were included in the sample (CCSSE, 2003b). Therefore, the following types of courses were specifically

excluded: non-credit, dual enrollment courses offered only to high school students, distance learning courses, all but the highest level of ESL courses, lab sections associated with a lecture, individual instruction courses, and individual study or self-paced classes. Also, courses that ran for fewer than four weeks or courses that were not in session during the survey period were excluded.

Instrumentation

Students in the 13 colleges identified in Table 6 were surveyed in spring 2005 using the paper-and-pencil CCSR questionnaire prepared by CCSSE. The CCSR questionnaire contains 38 questions prescribed by CCSSE that relate to student engagement as categorized by five CCSSE benchmarks, i.e. active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners. Of the 38 questions, 12 contain sub-items gathering data on 98 factors. Questions are asked in a structured response format using, primarily, a Likert-type response scale. The CCSR benchmark questions associated with the independent variables are presented below (CCSSE, 2005b).

Active and Collaborative Learning

Seven items measure active and collaborative learning, as follows:

Q. 4. In your experiences at this college during the current school year, about how often have you done each of the following? (Rated on scale of Very often, Often, Sometimes, Never)

- 4a. Asked questions in class or contributed to class discussions
- 4b. Made a class presentation
- 4f. Worked with other students on projects during class

- 4g. Worked with classmates outside of class to prepare class assignments
- 4h. Tutored or taught other students (paid or voluntary)
- 4i. Participated in a community-based project as a part of a regular course
- 4r. Discussed ideas from your readings or classes with others outside of (students, family members, co-workers, etc.)

Student Effort

Eight items measure student effort, as follows:

Q. 4. In your experiences at this college during the current school year, about how often have you done each of the following? (Rated on scale of Very often, Often, Sometimes, Never)

- 4c. Prepared two or more drafts of a paper or assignment before turning it in
- 4d. Worked on a paper or project that required integrating ideas or information from various sources
- 4e. Come to class without completing readings or assignments

Q. 6. During the current school year, about how much reading and writing have you done at this college? (Rated on scale of None, 1-4, 5-10, 11-20, More than 20)

- 6b. Number of books read on your own (not assigned) for personal enjoyment or academic enrichment

Q. 10. About how many hours do you spend in a typical 7-day week doing each of the following? (Rated on scale of None, 1-5, 6-10, 11-20, 21-30, More than 30)

- 10a. Preparing for class (studying, reading, writing, rehearsing, doing homework, or other activities related to your program)

Q. 13. Indicate HOW OFTEN you use the following services: (Rated on scale of Often, Sometimes, Rarely/Never, Don't know/N.A.)

- 13d. Peer or other tutoring
- 13e. Skill labs (writing, math, etc.)
- 13h. Computer lab

Academic Challenge

Ten items measure academic challenge, as follows:

Q. 4. In your experiences at this college during the current school year, about how often have you done each of the following? (Rated on scale of Very often, Often, Sometimes, Never)

- 4p. Worker harder than you thought you could to meet an instructor's standards or expectations

Q. 5. During the current school year, how much has your coursework at this college emphasized the following mental activities? (Rated on a scale of Very much, Quite a bit, Some, Very little)

- 5b. Analyzing the basic elements of an idea, experience, or theory
- 5c. Synthesizing and organizing ideas, information, or experiences in new ways
- 5d. Making judgments about the value or soundness of information, arguments, or methods

5e. Applying theories or concepts to practical problems or in new situations

5f. Using information you have read or heard to perform a new skill

Q. 6. During the current school year, about how much reading and writing have you done at this college? (Rated on a scale of None, 1-4, 5-10, 11-20, More than 20)

6a. Number of assigned textbooks, manuals, books, or book-length packs of course readings

6c. Number of written papers or reports of any length

Q. 7. Mark the response that best represents the extent to which your examinations during the current school year have challenged you to do your best work at this college. (Rated on a scale of 7 [Extremely challenging] to 1 [Extremely easy])

Q. 9. How much does this college emphasize each of the following? (Rated on scale of Very much, Quite a bit, Some, Very little)

9a. Encouraging you to spend significant amounts of time studying

Student-Faculty Interaction

Six items measure student-faculty interaction, as follows:

Q. 4. In your experiences at this college during the current school year, about how often have you done each of the following? (Rated on scale of Very often, Often, Sometimes, Never)

4k. Used email to communicate with an instructor

4l. Discussed grades or assignments with an instructor

4m. Talked about career plans with an instructor or advisor

- 4n. Discussed ideas from your readings or classes with instructors outside of class
- 4o. Received prompt feedback (written or oral) from instructors on your performance
- 4q. Worked with instructors on activities other than coursework

Support for Learners

Seven items measure support for learners, as follows:

Q. 9. How much does this college emphasize each of the following? (Rated on scale of Very much, Quite a bit, Some, Very little)

- 9b. Providing the support you need to help you succeed at this college
- 9c. Encouraging contact among students from different economic, social, and racial or ethnic backgrounds
- 9d. Helping you cope with your non-academic responsibilities (work, family, etc.)
- 9e. Providing the support you need to thrive socially
- 9f. Providing the financial support you need to afford your education

Q. 13. Indicate HOW OFTEN you use the following services: (Rated on scale of Often, Sometimes, Rarely/Never, Don't know/N.A.)

- 13a. Academic advising/planning
- 13b. Career counseling

In addition to the student engagement benchmarks cited above, 23 CCSR-prescribed items elicit demographic data, as follows: whether the student began college where he/she is currently enrolled, whether the student is full-time or less than full-time,

the student's reasons/goals for attending this college, sources of tuition payment, the types of schools the student has attended since high school other than the one where he/she is currently enrolled, when the student plans to take additional classes at the college, the student's overall grade average, the time of day/week the student most frequently takes classes, the total credit hours earned at current college prior to the current term, the other types of institutions at which the student is also enrolled during the current term and the number of classes the student is taking at other institutions, whether the student would recommend the college, how the student would evaluate his/her educational experience at the college, whether the student has children living with him/her, student's age group, sex, marital status, whether English is the native language, whether student is an international student or foreign national, racial identification, highest academic credential student has earned, highest level of education obtained by the student's father and mother, and program code. An optional item requests students' identification number (social security number). This provides a mechanism whereby colleges can link their results with other institutional research efforts and state databases. Students are, however, assured of the confidentiality of the results and that all data will be presented in the aggregate.

From these 23 questions, two questions were particularly important to this study. Question 37 asks students to enter their program code from the list provided by CCSSE, discussed fully under "Sample," and the program code entered was used to identify occupational-technical students and transfer students. Question 20 asks, "When do you plan to take classes at this college again?" Response option 2, "I have no current plans to

return,” and response option 3, “Within the next 12 months,” were used as the indicator of the student’s intention to persist.

Validity

Validity of an instrument is best demonstrated when its outcomes relate to external measures. Marti (n.d.) reports that the CCSR contains a number of items independent of, but related to, each of the benchmarks that support their connection to educational outcomes and thus the validity of the CCSR. Grade point average (GPA) is the one variable measured by CCSR that can be considered an external measure of student performance, and although GPA is a sometimes controversial measure of academic performance, it is still widely accepted as a gross measure of student learning (Marti, n.d.).

A random slopes and intercepts model was used to regress self-reported GPA on each of the CCSSE benchmarks to examine their relationship (Marti, n.d.). Outcomes showed a positive relationship between GPA and all of the five benchmarks, except Support for Learners. According to Marti, one would not necessarily expect Support for Learners to closely relate to GPA since Support for Learners reflects institutional practices tied to student retention and is not directly related to learning.

To further test construct validity, random slope and intercept models were performed on each of the factors comprising the gain in knowledge, skills and personal development items and each of the benchmarks (Marti, n.d.). A statistically significant relationship was found between each of the gain items and the benchmark scores. Thus, the precept that the more engaged students are, the higher the levels of gain reported in the academic skills, personal development, and career-related items is supported.

Reliability

Exploratory and confirmatory factor analyses were conducted in order to achieve “meaningful groups of items that could be used as benchmarks of effective educational practice” (Marti, n.d., p. 5). Multiple group analyses tested goodness-of-fit across sampled subgroups, i.e. the 2002 sample data were compared to the 2003 data; males were compared with females, and part-time students were compared with full-time students. Constrained factor loadings and factor variances were found to be equal across both groups as shown in Table 15. Multiple group analyses make it possible to assume identical factor structures across years and subpopulations. According to Marti, the most critical of the multiple group analyses is the year-to-year comparison since it demonstrates that the questionnaire can be used to track changes across time. Other analyses have shown that there are indeed differences in levels of engagement between male and female students, and these differences are not attributable to structural differences. Comparisons between subgroups within the larger community college population are therefore supported.

Table 15

Multiple Group Analyses

	Root Mean Square Error of Approximation (RMSEA)	Standardized Root Mean Residual (SRMR)
2002 and 2003 sample	.051	.055
Male and female students	.051	.056
Part-time and full-time students	.050	.056

The CCSR was developed from the National Survey of Student Engagement (NSSE), and of 79 items on the NSSE that measure student engagement, 56 of the same items intentionally appear in the CCSR, a 71% overlap between the two instruments. Extensive study of NSSE psychometric properties has found that instrument to be reliable and valid (Kuh, Hayek, et al., 2001; Kuh, 2002). Because the sample for all colleges that participate in CCSSE is selected in the same way, participants can generalize the results to their student population and compare those results to those of other institutions (Marti, n.d.). Self-reported demographic data on the CCSR compared to institution data reported in the Integrated Postsecondary Education Data System (IPEDS) showed proportions of race, sex, and age to closely match on the 2003 CCSSE. There was a greater difference, however, in the proportion of part-time to full-time students between the sample and the population. CCSSE attributes this to the fact that full-time students take more classes and are therefore more likely to be surveyed. CCSSE weights the statistics by part-time and full-time status in an attempt to correct for this effect. Because the survey is administered during the regular class period and not announced in advance, a higher response rate is achieved than would be achieved under purely voluntary circumstances. Therefore, non-responder bias is not an issue to affect generalization to the population.

Cronbach's alpha was used to measure reliability of the latent constructs within each benchmark and found the benchmark scales had reasonable reliability measures. Alphas for each benchmark are shown in Table 16 (Marti, n.d.).

Table 16

Cronbach's alpha for CCSSE Benchmarks

Item	α
Active and Collaborative Learning	.67
Student Effort	.56
Academic Challenge	.80
Student-Faculty Interaction	.72
Support for Learners	.76

Coefficients, standard errors, and alphas for the CCSSE benchmarks confirmatory factor analysis can be found in Table 3 of Marti's article. The five constructs reproduced the empirical covariance matrix reasonably well with Root Mean Square Error of Approximation (RMSEA) being .066 and Standardized Root Mean Residual (SRMR) being .066. The standardized scores for each composite benchmark were approximately normally distributed, and skewness and kurtosis statistics were close to zero.

Procedure

CCSSE (2003b) prescribes very strict guidelines for administering the CCSR, and a CCSSE Liaison assigned to each college provided those guidelines to every college's Campus Coordinator and/or Survey Administrator in a Coordinator and Survey Administrator Procedure Guide. Colleges with multiple campuses were expected to designate a Survey Administrator for each campus. The survey was administered during March-April during a regularly scheduled class period and was not announced to students ahead of time. The CCSR was designed to take approximately 25 minutes to complete. The Survey Administrator completed a Class Information Sheet to indicate how many

students were in the room at the time the survey was administered. Survey packets were sent to colleges with the number of surveys needed based on enrollment reported for the class as of the 12th day of class. Additional surveys were sent in a separate packet should there be enrollment discrepancies, but the results from surveys in the separate packet were not included in the national database. The original count was considered representative of the class enrollment, and including extra surveys could jeopardize the standardized sampling process in place designed to ensure that results are comparable across institutions. Completed surveys and unused Class Information Sheets were returned to CCSSE by UPS no later than May 27, 2005.

Data Collection and Analysis

Colleges in the Virginia Community College System administered the paper-and-pencil CCSR to students in their sample in spring 2005, and the colleges received their Institutional Report by July 31, 2005. The 13 community colleges included in the study provided the researcher the raw data sent to each college on a CDrom, exclusive of any student identification information, in accordance with approval from the Virginia Community College System's office. The CDrom contained student responses for each item completed by the student. The colleges also received a printed Institutional Report and access to the Members Only CCSSE web site.

Demographic data reported for both groups of students is presented in Chapter IV. The levels of active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners was measured for occupational-technical students and transfer students by how students rated each item associated with these independent variables on the Likert-type response scale. The level of overall

student engagement was measured for each group of students by the composite ratings of students' responses on items associated with the five independent variables. An independent samples t test was conducted to determine whether there were significant differences between occupational-technical students and transfer students in their (1) overall levels of student engagement (Hypothesis 1), and (2) mean scores on the CCSR items related to the five independent variables (Hypotheses 2-6). A two-way contingency table analysis with a chi-square (χ^2) test of independence was conducted to test proportional differences in students' self-reported intention to persist (Hypothesis 7). A Pearson correlation determined whether there was a significant relationship between occupational-technical student engagement and intention to persist and transfer student engagement and intention to persist (Hypothesis 8).

Limitations

The validity and reliability of a measurement instrument are of utmost importance to the researcher (Gay & Airasian, 2000), and limitations of this study follow. Construct validity addresses what the test truly measures and tops the list of Gay and Airasian's validity concerns. In an overview of CCSR psychometric properties, Marti (n.d.) identified two limitations of the factor analysis conducted for the CCSR:

1. The survey was not designed to measure a set of latent constructs defined *a priori* (p. 13). That is, specific items were not designed up front to load on a particular latent construct, making it harder to establish the best number of factors underlying the set of items. This was particularly true since engaged students could be engaged across more than one latent construct.

2. In classical uses of factor analysis, such as IQ tests, one agent controls the practices being assessed. In the CCSR, students, faculty, and the institution itself impact aspects of engagement being measured. For example, a student might be willing to rewrite papers a number of times but may not be taking a class where papers are assigned. The score related to the benchmark is confounded by the multiple agents impacting the measurement. Thus, one cannot “assume that conceptually related items will be empirically related” (p. 14).

Another limitation of this study could be that the final CCSSE benchmarks deviated from the nine-factor confirmatory factor analysis (Marti, n.d.). A Technical Advisory Panel reviewed the results of the confirmatory factor analysis and reliability tests. Coupled with their own expert judgment, the Panel also took into account empirical evidence about student engagement in undergraduate education. Marti (n.d.) stresses that CCSSE’s goal was to create benchmarks that were “reliable, useful, and intuitively compelling to community college educators” (p. 14), but one would have to ask whether a different panel of experts might have tweaked the factors differently, eliciting different results.

Internal validity could have been affected by subject effects in two areas:

(a) subjects may not have responded candidly and instead have given the answer they thought they should give, and (b) students self-reported their intention to persist. To address the former, CCSSE included a number of questions about the same topic asked in different ways which would hopefully diminish subject effects. With regard to self-reporting intention to persist, whether the student actually takes classes within the next 12 months or follows through on his stated intention not to return will be unknown.

Interpretations of the results as they apply to persistence have been based on an assumption that students actually do what they say they will do. The literature would indicate that such an assumption is frequently false.

Two initial concerns about the sample were: (a) whether the sample would include a disproportionate number of students in either occupational-technical programs or transfer programs and (b) that students who may have only been at the college for one semester would have had fewer opportunities to become engaged than participants who had been enrolled for a longer period of time. These concerns were somewhat ameliorated by the findings, and one can conclude that the random selection of classes administered the survey minimized the effects of both situations.

External validity as measured by the generalizability of the results of the study is limited to the 13 small colleges in the Virginia Community College System, i.e. colleges with no more than 4,499 students (headcount). The researcher recognizes, however, that college cultures, the number and quality of support services/activities offered, and other environmental factors differ among the colleges included in the study and could impact levels of engagement. The effect of these extraneous variables was hopefully minimized through the random selection of CCSSE participants, the controlled environment in which the responses were made, and the provision CCSSE puts in place for nonparticipation which guaranteed an excellent response rate.

Conclusion

Using the results of The Community College Student Report (CCSR) from 13 small community colleges in Virginia, the purposes of study were threefold: (a) to determine if there was a difference in the level of student engagement between

occupational-technical students and transfer students in the colleges included in the study; (b) to determine if there were differences in levels of engagement between occupational-technical students and transfer students on each of the student engagement variables benchmarked by CCSSE, i.e. active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners; and (c) to explore the relationship between the student engagement variables and students' self-reported intention to persist in small community colleges in Virginia.

The study employed a descriptive cross-sectional, static-group design, and the occupational-technical and transfer student groups were determined by the program code students entered on the CCSR. The sample size for the study was robust, and psychometric measures determined the CCSR to be both valid and reliable even though some limitations have been identified. An independent samples t test was conducted to determine differences delineated in Hypotheses 1-6. A two-way contingency table analysis with a chi-square (χ^2) test of independence was conducted to test proportional differences in students' self-reported intention to persist (Hypothesis 7), and a Pearson correlation determined whether there was a significant relationship between occupational-technical student engagement and intention to persist and transfer student engagement and intention to persist (Hypothesis 8).

CHAPTER IV

RESULTS

This study focused on the level of engagement and intention to persist of two groups of students in 13 small community colleges in Virginia who completed the Community College Survey of Student Engagement's (CCSSE) Community College Student Report (CCSR) in spring 2005. Group 1, occupational-technical students, was comprised of students enrolled in occupational-technical programs leading to an Associate of Applied Science Degree, certificate, or diploma. Group 2, transfer students, was comprised of students enrolled in transfer programs leading to an Associate of Arts and Science Degree.

This chapter will begin with a review of the data collection process, the method for identifying the occupational-technical student group and transfer student group, and a presentation of pertinent demographic information for each group. Presented next are the eight research questions and corresponding hypotheses that guided the study. Variables associated with the study will be addressed within the context of the research questions and hypotheses. The statistical procedures used in the study and findings related to each research question will then be presented. Finally, conclusions are drawn based on the results of the study.

Data Collection and Student Groups

The paper-and-pencil CCSR (Appendix A) was designed to take approximately 25 minutes to complete and was administered under strict CCSSE guidelines in spring 2005 during a regularly scheduled class period in all Virginia community colleges. Colleges received their Institutional Report by July 31, 2005. With approval from the

Virginia Community College System, the 13 small community colleges in Virginia included in the study, and presented in Table 6, provided the researcher with the raw data sent on a CDrom to each college, exclusive of any student identification information. The data from the colleges included a total of 6,030 cases, approximately 82% of the number of surveys CCSSE targeted for the 13 colleges. Students were asked by the campus representative administering the survey to indicate their program of study using a code from the list provided by CCSSE (Appendix B). The CCSSE code book identifies the program code as “major” in the Institutional Report. The researcher compared the programs offered in each of the 13 community colleges included in the study (VCCS, n.d.b) with the CCSSE Program Code Sheet to determine whether the program option was considered by the Virginia community colleges to be occupational-technical, transfer, or whether the code mixed programs from the two categories. The researcher then reviewed the responses coded for major in each of the 13 Institutional Report 2005 data files for the community colleges included in the study, and the codes are presented in Appendix C along with whether the program classification was considered to be occupational-technical, transfer, or mixed. Survey responses were excluded from the study when the major code mixed occupational-technical and transfer programs or when students selected a code that did not match any programs offered by their college. The latter are labeled as “no major” in Appendix C. Table 17 presents the major program codes used to determine the students to be included in the occupational-technical student group and the transfer student group. Matching students’ program code to the above list and eliminating cases where the students did not respond to the question resulted in 3,553

cases retained in the study, with 1,886 (53.1%) being occupational-technical students and 1,667 (46.9%) being transfer students.

Table 17

Major Program Codes Determining Occupational-Technical Student Group and Transfer Student Group

Occupational-Technical Program Codes	Transfer Program Codes
01	03
02	09
07	11
08	12
13	14
18	15
22	16
24	17
25	23
31	26
33	27
	28
	29
	30
	32

Group Demographics

The CCSR elicited demographic data regarding both occupational-technical students and transfer students in the study. The percentage of students who, as of spring

2005, had earned no credit hours at their current college was similar for both occupational-technical students and transfer students (9.1% and 7.9%, respectively). The percentage of students who had earned 30-44 credits was also similar for occupational-technical students and transfer students (14.4% and 16.4%, respectively). Both occupational-technical students and transfer students took day classes most frequently (76.5% and 76.2%, respectively), with 21.4% of occupational-technical students and 21.7% of transfer students reporting that they took evening classes most frequently. More transfer students than occupational-technical students reported having a GPA of a B or higher (66.1% and 62.9%, respectively); however, an almost equal percentage of transfer students and occupational-technical students reported having a GPA of C- or lower (2.8% and 2.5%, respectively).

Additional selected demographic data are reported in Tables 18-20 that follow.⁸ Table 18 presents the gender and age data for students in the sample. While gender distribution is similar in both groups, more transfer students were traditional-aged students. Students in both groups were primarily White, Non-Hispanic as reported in Table 19. As shown in Table 20, occupational-technical students and transfer students reported different levels of previous academic achievement. A high school diploma or GED was the highest academic credential that had been earned by 80.9% of transfer students compared to 68.4% of occupational-technical students, with more occupational-technical students reporting that they had already earned a vocational/technical certificate, associate's degree, or bachelor's degree.

⁸Due to missing data, numbers may not equal the total number of students in the group, and percentages may not equal 100%.

Table 18

Gender and Age of Respondents

	Occupational-Technical Students (N = 1,886)		Transfer Students (N = 1,667)	
	n	%	n	%
Gender				
Male	597	31.7	544	32.6
Female	1,272	67.4	1,105	66.3
Age				
Under 22 yrs.	716	38.0	942	56.5
22-49 yrs.	1,046	55.4	643	38.6
Over 50 yrs.	95	5.1	54	3.2

Table 19

Race of Respondents

Race	Occupational-Technical Students (N = 1,886)		Transfer Students (N = 1,667)	
	n	%	n	%
American Indian or other Native American	17	.9	14	.8
Asian, Asian American or Pacific Islander	19	17.0	13	.8
Native Hawaiian	1	.1	2	.1
Black or African American, Non-Hispanic	240	12.7	176	10.6
White, Non-Hispanic	1,532	81.2	1,361	81.6
Hispanic, Latino, Spanish	16	.8	23	1.4
Other	30	1.6	45	2.7

Table 20

Highest Academic Credential Earned

Highest Academic Credential Earned	Occupational-Technical Students (N = 1,886)		Transfer Students (N = 1,667)	
	n	%	n	%
None	28	1.5	21	1.3
High school diploma or GED	1,290	68.4	1,348	80.9
Vocational/technical certificate	296	15.7	104	6.2
Associate degree	117	6.2	92	5.5
Bachelor's degree	58	3.1	34	2.0
Master's/doctoral/professional degree	8	.4	9	.5

Other responses on the CCSR serve as indicators of students' life situations.

Occupational-technical students were more likely than transfer students to be first-generation students (45.9% and 32.1%, respectively) and to have children who lived with them (41.5% and 27.4%, respectively). Occupational-technical students were also more likely than transfer students to be single parents (15.2% and 11.3%, respectively). Question 14 of the CCSR asked students, "How likely is it that the following issues would cause you to withdraw from class or from this college?" The issues and the percentages of students responding "likely" or "very likely" to Question 14 are shown in Table 21. With the exception of "transfer" as a reason for leaving their current college, students' responses were very similar. Over a third of both groups reported "working full-time" and "lack of finances" as reasons why they might withdraw. Students' major

sources of funds to pay tuition are compared in Table 22. Transfer students were far more likely than occupational-technical students to report “parent or spouse/significant other’s income/savings” as a source of funds (35.3% and 23.3%, respectively).

Table 21

Likelihood of Withdrawing

Issue	Occupational-Technical Students (N = 1,886)		Transfer Students (N = 1,667)	
	n	%	n	%
Working full-time	702	37.3	585	35.1
Caring for dependents	566	30.0	462	27.7
Academically unprepared	325	17.3	290	17.4
Lack of finances	965	51.2	785	47.1
Transfer to a 4-year college or university	508	26.9	1,028	61.7

Table 22

Major Source of Funds to Pay Tuition

Source of Funds	Occupational-Technical Students (N = 1,886)		Transfer Students (N = 1,667)	
	n	%	n	%
My own income/savings	528	28.0	454	27.2
Parent or spouse/significant other's income/savings	440	23.3	589	35.3
Employer contributions	132	7.0	89	5.3
Grants and scholarships	851	45.1	685	41.1
Student loans (bank, etc.)	166	8.8	152	9.1
Public assistance	234	12.4	160	9.6

Research Questions and Hypotheses

Eight research questions guided this study. Each question and its corresponding hypothesis will introduce the test statistics generated by SPSS® 14.0. An independent samples t test was conducted to determine differences described in Hypotheses 1-6, a two-way contingency table analysis with a chi-square (χ^2) test of independence was conducted to test proportional differences in Hypothesis 7, and a Pearson correlation was conducted to test relationships described in Hypothesis 8. An alpha level of .05 was determined a priori as the level of significance.

Research Question 1

Is there a significant difference in the level of student engagement between occupational-technical students and transfer students at small community colleges in Virginia?

H1: The level of student engagement as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

This first question and hypothesis addressed differences in the overall level of student engagement between occupational-technical students and transfer students. The overall student engagement variable was computed from the composite ratings of the student responses to questions on the CCSR associated with five areas benchmarked by CCSSE as indicators of student engagement: (a) active and collaborative learning, (b) student effort, (c) academic challenge, (d) student-faculty interaction, and (e) support for learners. Group statistics are presented in Table 23.

Table 23

Group Statistics: Overall Student Engagement

Group	N	Mean	SD	Std. Error Mean
Occupational-Technical	1,491	2.31	.39	.01
Transfer	1,322	2.28	.40	.01

An independent samples t test was conducted to evaluate the hypothesis that there would be a significant difference in the level of engagement between occupational-technical students and transfer students in small community colleges in Virginia.

Levene's Test for Equality of Variances was not significant at .45, and therefore the equal-variance t test was used. The test was significant, $t(2,811) = 2.483$, $p = .01$, and indicated that occupational-technical students ($M = 2.31$, $SD = .39$), on average, were more engaged than transfer students ($M = 2.28$, $SD = .40$). The 95% confidence interval of the difference in means ranged from .008 to .066. The eta square index indicated that .2% of the variability in student engagement was attributable to whether a student was an occupational-technical student or transfer student. Therefore, Hypothesis 1 that the overall level of student engagement would differ significantly between occupational-technical students and transfer students was supported.

Research Question 2

Is there a significant difference between the level of active and collaborative learning experienced by occupational-technical students and transfer students at small community colleges in Virginia?

H2: The level of active and collaborative learning as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

The second question and hypothesis addressed differences in the level of active and collaborative learning between occupational-technical students and transfer students. The active and collaborative learning variable was computed from the student responses to seven questions on the CCSR associated with active and collaborative learning and benchmarked by CCSSE. Group statistics are presented in Table 24.

Table 24

Group Statistics: Active and Collaborative Learning

Group	N	Mean	SD	Std. Error Mean
Occupational-Technical	1,809	2.15	.48	.01
Transfer	1,596	2.09	.48	.01

An independent samples t test was conducted to evaluate the hypothesis that there would be a significant difference in the level of active and collaborative learning between occupational-technical students and transfer students in small community colleges in Virginia. Levene's Test for Equality of Variances was not significant at .996, and therefore the equal-variance t test was used. The test was significant, $t(3,403) = 3.85$, $p = <.01$ and indicated that occupational-technical students ($M = 2.15$, $SD = .49$), on average, experienced a higher level of active and collaborative learning than transfer students ($M = 2.09$, $SD = .48$). The 95% confidence interval of the difference in means ranged from .031 to .096. The eta square index indicated that .4% of the variability in active and collaborative learning was attributable to whether a student was an occupational-technical student or transfer student. Therefore, Hypothesis 2 that the level of active and collaborative learning would differ significantly between occupational-technical students and transfer students was supported.

Research Question 3

Is there a significant difference in the level of student effort between occupational-technical students and transfer students at small community colleges in Virginia?

H3: The level of student effort as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

The third question and hypothesis addressed differences in the level of student effort between occupational-technical students and transfer students. The student effort variable was computed from the student responses to eight questions on the CCSR associated with student effort and benchmarked by CCSSE. Group statistics are presented in Table 25.

Table 25

Group Statistics: Student Effort

Group	N	Mean	SD	Std. Error Mean
Occupational-Technical	1,707	1.95	.47	.01
Transfer	1550	1.98	.45	.01

An independent samples t test was conducted to evaluate the hypothesis that there would be a significant difference in the level of student effort between occupational-technical students and transfer students in small community colleges in Virginia. Levene's Test for Equality of Variances was significant at .02, and therefore the unequal-variance t test was used. The test was significant, $t(3,245.85) = -2.17$, $p = .03$ and indicated that occupational-technical students ($M = 1.95$, $SD = .45$), on average, exerted less effort than transfer students ($M = 1.98$, $SD = .48$). The 95% confidence interval of the difference in means ranged from $-.066$ to $-.003$. The eta square index indicated that .1% of the variability in student effort was attributable to whether a student was an

occupational-technical student or transfer student. Therefore, Hypothesis 3 that the level of student effort would differ significantly between occupational-technical students and transfer students was supported.

Research Question 4

Is there a significant difference in the level of academic challenge experienced by occupational-technical students and transfer students at small community colleges in Virginia?

H4: The level of academic challenge as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

The fourth question and hypothesis addressed differences in the level of academic challenge experienced by occupational-technical students and transfer students. The academic challenge variable was computed from the student responses to ten questions on the CCSR associated with academic challenge and benchmarked by CCSSE. Group statistics are presented in Table 26.

Table 26

Group Statistics: Academic Challenge

Group	N	Mean	SD	Std. Error Mean
Occupational-Technical	1,766	3.12	.58	.01
Transfer	1,557	2.98	.53	.01

An independent samples t test was conducted to evaluate the hypothesis that there would be a significant difference in the level of academic challenge experienced by

occupational-technical students and transfer students in small community colleges in Virginia. Levene's Test for Equality of Variances was significant at .001, and therefore the unequal-variance t test was used. The test was significant, $t(3,315.49) = 6.87$, $p = <.01$ and indicated that occupational-technical students ($M = 3.12$, $SD = .58$), on average, were more academically challenged than transfer students ($M = 2.98$, $SD = .53$). The 95% confidence interval of the difference in means ranged from .095 to .171. The eta square index indicated that 1.4% of the variability in academic challenge was attributable to whether a student was an occupational-technical student or transfer student. Therefore, Hypothesis 4 that the level of academic challenge would differ significantly between occupational-technical students and transfer students was supported.

Research Question 5

Is there a significant difference in the level of student-faculty interaction between occupational-technical students and transfer students at small community colleges in Virginia?

H5: The level of student-faculty interaction as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

The fifth question and hypothesis addressed differences in the level of student-faculty interaction between occupational-technical students and transfer students. The student-faculty interaction variable was computed from the student responses to six questions on the CCSR associated with student-faculty interaction and benchmarked by CCSSE. Group statistics are presented in Table 27.

Table 27

Group Statistics: Student-Faculty Interaction

Group	N	Mean	SD	Std. Error Mean
Occupational-Technical	1,789	2.192	.56	.01
Transfer	1,573	2.196	.56	.01

An independent samples t test was conducted to evaluate the hypothesis that there would be a significant difference in the level of student-faculty interaction between occupational-technical students and transfer students in small community colleges in Virginia. Levene's Test for Equality of Variances was not significant at .70, and therefore the equal-variance t test was used. The test was not significant, $t(3,360) = -.20$, $p = .84$ and indicated that there was no significant difference in the level of student-faculty interaction between occupational-technical students ($M = 2.192$, $SD = .56$) and transfer students ($M = 2.196$, $SD = .56$). The 95% confidence interval of the difference in means ranged from $-.042$ to $.034$. Therefore, Hypothesis 5 that the level of student-faculty interaction would differ significantly between occupational-technical students and transfer students was not supported.

Research Question 6

Is there a significant difference in the level of support for learners experienced by occupational-technical students and transfer students at small community colleges in Virginia?

H6: The level of support for learners as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

The sixth question and hypothesis addressed differences in the level of support for learners between occupational-technical students and transfer students. The support for learners variable was computed from the student responses to seven questions on the CCSR associated with student-faculty interaction and benchmarked by CCSSE. Group statistics are presented in Table 28.

Table 28

Group Statistics: Support for Learners

Group	N	Mean	SD	Std. Error Mean
Occupational-Technical	1,793	2.18	.60	.01
Transfer	1,592	2.12	.60	.02

An independent samples t test was conducted to evaluate the hypothesis that there would be a significant difference in the level of support for learners between occupational-technical students and transfer students in small community colleges in Virginia. Levene's Test for Equality of Variances was not significant at .51, and therefore the equal-variance t test was used. The test was significant, $t(3,383) = 2.80$, $p = .01$ and indicated that occupational-technical students ($M = 2.18$, $SD = .60$), on average, experienced more support for learners than transfer students ($M = 2.12$, $SD = .60$). The 95% confidence interval of the difference in means ranged from .017 to .098. The eta square index indicated that .2% of the variability in support for learners was attributable

to whether a student was an occupational-technical student or transfer student. Therefore, Hypothesis 6 that the level of support for learners would differ significantly between occupational-technical students and transfer students was supported.

Research Question 7

Is the proportion of occupational-technical students' self-reported intention to persist significantly different from the proportion of transfer students' self-reported intention to persist at small community colleges in Virginia?

H7: The proportion of students' self-reported intention to persist as measured by The Community College Student Report will differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia.

The seventh question and hypothesis addressed proportional differences between occupational-technical students' and transfer students' self-reported intention to persist. Question 20 of the CCSR asked, "When do you plan to take classes at this college again?" Response values were 1 = I will accomplish my goal(s) this term and will not be returning, 2 = I have no current plans to return, 3 = within the next 12 months, and 4 = uncertain. Table 29 presents the distribution of responses.

Table 29

Responses to Intention to Persist, Question 20

	TAKAGAIN				Total
	1	2	3	4	
Occupational.-Technical	194	106	1,198	355	1,853
Transfer	239	69	1,093	247	1,648
Total	433	175	2,291	602	3,501

A two-way contingency table analysis with a chi-square (χ^2) test of independence was conducted to evaluate the hypothesis that there would be a significant difference between the proportion of occupational-technical students who reported an intention to persist and the proportion of transfer students who reported an intention to persist in small community colleges in Virginia. The two variables were intention to persist with two levels (2 = no current plans to return and 3 = within the next 12 months) and major with two levels (1 = occupational-technical students and 2 = transfer students). Intention to persist and major were found to have a statistically significant, though very weak, relationship with Pearson χ^2 (1, N = 2,466) = 4.47, p = .03, Φ = .04. For the purposes of this study, response 3 was considered to be the primary indicator of intention to persist. The proportion of students who intended to persist as indicated by variable response 3, within the next 12 months, was significantly higher for occupational-technical students (.52) than transfer students (.48). Therefore, Hypothesis 7 that there would be a significant difference between the proportion of occupational-technical students' and transfer students' self-reported intention to persist was supported.

Research Question 8

Is there a significant relationship between the student engagement variables and students' self-reported intention to persist at small community colleges in Virginia?

H8: There will be a significant relationship between the student engagement variables and students' self-reported intention to persist at small community colleges in Virginia.

The eighth question and hypothesis addressed whether there was a significant relationship between the five student engagement variables (active and collaborative learning, student effort, academic challenge, student effort, and support for learners) and students' self-reported intention to persist at small community colleges in Virginia. All analyses were conducted using response values equal to 2 (I have no current plans to return) or 3 (within the next 12 months) on the intention to persist variable.

A Pearson's correlation was conducted to evaluate the hypothesis that there would be a significant relationship between the student engagement variables and students' self-reported intention to persist at small community colleges in Virginia. Table 30 presents the results of the correlational analyses for all students whose response values equaled 2 (I have no current plans to return) or 3 (within the next 12 months) on the intention to persist variable. The results show a small statistically significant relationship between student effort and intention to persist ($r = .04$) and support for learners and intention to persist ($r = .11$). Therefore, Hypothesis 8 that there would be a significant relationship between the student engagement variables and students' self-reported intention to persist was partially supported.

Table 30

Correlations among the Five Student Engagement Variables and Intention to Persist
Variable—All Students

	Student-Faculty Interaction	Academic Challenge	Student Effort	Active and Collaborative Learning	Support for Learners
Academic Challenge	.52**				
Student Effort	.45**	.49**			
Active and Collaborative Learning	.62**	.53**	.46**		
Support for Learners	.40**	.42**	.33**	.33**	
Intention to Persist	.03	.02	.04*	-.01	.11**

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Occupational-Technical Students

Table 31 presents the results of the correlational analyses for occupational-technical students whose response values equaled 2 (I have no current plans to return) or 3 (within the next 12 months) on the intention to persist variable. The results showed a small statistically significant inverse relationship between active and collaborative learning and intention to persist ($r = -.07$) and a small statistically significant positive relationship between support for learners and intention to persist ($r = .06$).

Table 31

Correlations among the Five Student Engagement Variables and Intention to Persist
Variable—Occupational-Technical Students

	Student-Faculty Interaction	Academic Challenge	Student Effort	Active and Collaborative Learning	Support for Learners
Academic Challenge	.51**				
Student Effort	.44**	.48**			
Active and Collaborative Learning	.61**	.52**	.45**		
Support for Learners	.35**	.37**	.32**	.29**	
Intention to Persist	.00	-.02	.02	-.07*	.06*

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Transfer Students

Table 32 presents the results of the correlational analyses for transfer students whose response values equaled 2 (I have no current plans to return) or 3 (within the next 12 months) on the intention to persist variable. The results showed a small statistically significant positive relationship between all student engagement variables and the intention to persist variable as follows: student-faculty interaction ($r = .07$), academic challenge ($r = .07$), student effort ($r = .07$) active and collaborative learning ($r = .09$), and

support for learners ($r = .17$). A summary of the student engagement variables and their relationship to intention to persist is presented in Table 33.

Table 32

Correlations among the Five Student Engagement Variables and Intention to Persist
Variable—Transfer Students

	Student-Faculty Interaction	Academic Challenge	Student Effort	Active and Collaborative Learning	Support for Learners
Academic Challenge	.53**				
Student Effort	.47**	.52**			
Active and Collaborative Learning	.64**	.53**	.50**		
Support for Learners	.45**	.48**	.36**	.37**	
Intention to Persist	.07*	.07*	.07*	.09**	.17**

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Table 33

Summary of Pearson Correlations: Relationship between Student Engagement Variables and Intention to Persist

	Occupational-Technical					
	Combined Groups		Students		Transfer Students	
	Intention to Persist	Sig. (2-tailed)	Intention to Persist	Sig. (2-tailed)	Intention to Persist	Sig. (2-tailed)
Active and collaborative learning	-.01 (N = 2,365)	.77	-.07* (N = 1, 258)	.01	.09** (N = 1,107)	<.01
Student Effort	.04* (N = 2,280)	.04	.02 (N = 1,196)	.46	.07* (N = 1,084)	.03
Academic Challenge	.02 (N = 2,316)	.44	-.02 (N = 1,226)	.59	.07* (N = 1,090)	.02
Student-faculty interaction	.03 (N = 2,332)	.17	.00 (N = 1,238)	.99	.08* (N = 1,094)	.02
Support for Learners	.11** (N = 2,360)	<.01	.06* (N = 1,248)	.04	.17** (N = 1,112)	<.01

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Conclusion

Conclusions drawn from an analysis of the results of this study are delineated below. While there were small statistically significant differences between occupational-technical students and transfer students on several student engagement variables, there was very little practical significance in the differences.

1. Demographic data indicated that occupational-technical students and transfer students in the 13 small community colleges in Virginia who were the subject of this study have many similar characteristics. However, several differences were observed between occupational-technical students and transfer students in that occupational technical students were (a) more likely to be older and to have children who lived with them, (b) more likely to have earned a credential beyond high school or a GED, (c) more likely to be first-generation students, (d) more likely to be single parents, and (e) less likely to receive financial support from a parent or spouse/significant other.
2. Working full time and lack of finances were issues both occupational-technical students and transfer students reported as likely or very likely reasons why they might withdraw from college.
3. Occupational-technical students' overall level of engagement, on average, was higher than that of transfer students.
4. Occupational-technical students, on average, experienced a higher level of active and collaborative learning.
5. Occupational-technical students, on average, exerted less effort than transfer students.

6. Occupational-technical students, on average, were more academically challenged than transfer students.
7. There was no statistically significant difference between the occupational-technical students and transfer students in the level of student-faculty interaction they experienced.
8. Occupational-technical students, on average, experienced a higher level of support for learners than transfer students.
9. A higher proportion of occupational-technical students than transfer students self-reported an intention to persist as measured by students' intention to take classes again within the next 12 months.
10. Considering all students in the study, student effort and support for learners showed a small statistically significant positive relationship to students' self-reported intention to persist, with support for learners being the stronger of the two relationships.
11. An examination of the two groups of students revealed differences between the groups in the relationship of the student engagement variables and intention to persist. For occupational-technical students, active and collaborative learning had a small statistically significant inverse relationship to intention to persist, and support for learners had a small statistically significant positive relationship to intention to persist. For transfer students, all five student engagement variables were found to have a small statistically significant positive relationship with students' intention to persist, with support for learners again exhibiting the strongest relationship.

This chapter has described the data collection process, the method for identifying the two student groups, and the relevant demographic data for both groups. The findings of the study relative to the eight research questions and corresponding hypotheses have also been presented along with conclusions drawn from the results. A discussion of the findings of the study and recommendations for further research will be presented in Chapter V.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter provides a summary of the study and presents conclusions based on the findings. In addition, this chapter addresses limitations of the study and implications of the findings for improving student engagement and persistence of occupational-technical students and transfer students in small community colleges in Virginia. Recommendations for future research are also presented.

Summary

The purposes of this study were threefold: (a) to determine if there was a difference in the level of student engagement between occupational-technical students and transfer students in small community colleges in Virginia; (b) to determine if there were differences in the levels of engagement between occupational-technical students and transfer students on each of the student engagement variables benchmarked by the Community College Survey of Student Engagement (CCSSE), i.e. active and collaborative learning, student effort, academic challenge, student-faculty interaction, and support for learners; and (c) to explore the relationship between the student engagement variables and students' self-reported intention to persist in small community colleges in Virginia. The study employed a descriptive cross-sectional, static-group design, and the occupational-technical and transfer student groups were determined by the program code students entered on The Community College Student Report (CCSR) questionnaire, the instrument developed by CCSSE to measure the student engagement variables.

Previous research has detailed the characteristics of community college students in general (AACC, n.d.c; Adelman, 2005, 2006; Bailey, Leinbach, et al., 2004) and the

typical characteristics that distinguish students who enter transfer programs from those students who enter occupational-technical programs (Adelman, 2005; Astin, 1977; Bailey, Kienzl, et al., 2004; Bailey, Leinbach, et al., 2004; Hoachlander et al., 2003; Levesque et al., 2000; Pascarella, 1999; Pascarella & Terenzini, 1991; Pierson et al., 2003). The literature paints a vivid portrait of community college students and colors that portrait with the incumbent risk factors that impact persistence to graduation (ACE, 2003; Adelman, 2006; Bailey, Alfonso, et al., 2004; Berker et al., 2003; CCSSE, 2003a; Coley, 2000; Hoachlander et al., 2003; Horn et al., 2002; Pascarella & Terenzini, 1991; Tinto, 1993).

Educational attainment is important to quality of life for individuals and communities, and postsecondary education inarguably provides both economic and societal benefits (AACC, n.d.c ; Bailey, Kienzl, et al., 2004; Brown, 1999; Grubb, 1999; IHEP, 1998; Levesque et al., 2000; A. Fletcher Mangum Consulting, 2003; Porter, 2002; Rowley & Hurtado, 2002; U.S. Department of Labor, 1999, 2006). Yet, ACT, Inc. (2005) found that the completion rate for associate's degrees from two-year public institutions in three years or less was 29.0% in 2004, the lowest rate since 1983. With increasingly demanding cries for accountability of higher education institutions for student success as measured by credential achievement, paying attention to student characteristics relative to theories of student departure cannot be overemphasized (Bailey, 2003; Braxton et al., 2000; Carnevale & Desrochers, 2004; Cohen & Brawer, 2003; Grubb et al., 1997; Hackman & Dysinger, 1970; McClenney, 2004; Okun et al., 1991; Tinto, 2003). As important as cognizance of student characteristics is to developing interventions addressing student departure, many would argue that equally important, or even more so,

are the theories of student engagement and what students experience once they enroll in college (Astin, 1977, 1984, 1993; Barefoot, 2003; Bean & Metzger, 1985; Camarena et al., 2005; CCSSE, 2003a, 2004; Chickering, 1974; Chickering & Gamson, 1987; Gatz & Hirt, 2000; Kuh et al., 1991; Kuh & Hu, 2001b; Minkler, 2002; Omatsu, 2002; Pascarella & Terenzini, 1991; Roderick & Carusetta, 2005; Suarez-Balcazar et al., 2003; Tinto, 1993, 1997, 2002a, 2002b, 2003; Upcraft et al., 1989).

Research on student engagement as it relates to persisters and leavers includes the five student engagement variables benchmarked by the Community College Survey of Student Engagement (2003a, 2004, 2005, 2005b): (a) active and collaborative learning, (b) student effort, (c) academic challenge, (d) student-faculty interaction, and (e) support for learners. Using the results of the 2005 Community College Student Report (CCSR) from student responses in the 13 small community colleges in Virginia, this study confirmed previous research on differences in demographic characteristics and risk factors between occupational-technical students and transfer students. The study also revealed differences in overall student engagement and determined how the two groups of students engaged differently with their institutions on each of the five engagement variables benchmarked by CCSSE. In fact, findings showed that occupational-technical students and transfer students differed significantly in their levels of engagement on all of the student engagement variables except one. Additionally, students' intention to persist differed between occupational-technical program majors and transfer program majors, and the relationship between the student engagement variables and students' intention to persist also differed between occupational-technical students and transfer students.

Specific conclusions based on the findings related to the eight research questions that guided the study will be presented within the context of each correlating hypothesis. An independent samples t test was conducted to determine differences in levels of student engagement (Hypotheses 1-6). A two-way contingency table analysis with a chi-square (χ^2) test of independence was conducted to test proportional differences in students' self-reported intention to persist (Hypothesis 7), and a Pearson correlation was conducted to determine if there was a significant relationship between occupational-technical student engagement and intention to persist and transfer student engagement and intention to persist (Hypothesis 8). An alpha level of .05 was determined a priori as the level of significance.

Hypotheses and Conclusions

Hypothesis 1 – Overall Student Engagement

Hypothesis 1 predicted that the level of student engagement would differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia. The findings confirmed that there was a statistically significant ($p = .01$) difference in the overall level of student engagement between occupational-technical students and transfer students. Indeed, occupational-technical students, on average, were more engaged than transfer students. One of the factors prompting this study was the general, though unsubstantiated, perception of some administrators and faculty in community colleges that occupational-technical students were more engaged than transfer students because of class and program structure. This perception is now somewhat substantiated; however, only .2% of

the variability in overall student engagement was attributable to whether a student was an occupational-technical student or a transfer student.

Hypothesis 2 – Active and Collaborative Learning

Astin (1993) characterized active learning as including activities that require students to be either “(1) actively involved or engaged or (2) required to take a good deal of initiative in enhancing their own learning” (p. 38). The findings of the study supported Hypothesis 2 which stated that the level of active and collaborative learning would differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia. Further, based on the findings, one can conclude that, on average, occupational-technical students in the study experienced a statistically significant ($p = <.01$) higher level of active and collaborative learning than transfer students. Even though the amount of the variance in active and collaborative learning attributable to group membership was quite small at .4%, the findings related to this research question become particularly interesting within the context of other findings and will be revisited in the discussion of Hypothesis 8.

Hypothesis 3 – Student Effort

Hypothesis 3 predicted that the level of student effort would differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia. The findings of the study supported the hypothesis ($p = .03$) but in a different direction from the previous two hypotheses. Occupational-technical students, on average, were found to exert less effort than transfer students. The amount of the variance in student effort attributable to group membership was again small at .1%, but the findings are certainly congruent with the literature.

Levesque et al. (2000) found in their study of 1995-1996 National Postsecondary Student Aid Study (NPSAS) data that occupational-technical students tended to be older and to have families. The researchers also found that 59% of occupational-technical students worked 35 hours or more compared to 47% of academic (transfer) majors. Table 17 presented the demographic data on the sample for this study and showed that the sample's occupational-technical students tended to be older than transfer students. Data in Table 20 indicated that more occupational-technical students than transfer students worked full-time (37.3% and 35.1%, respectively) and cared for dependents (30.0% and 27.7%, respectively). Far more occupational-technical students than transfer students had children who lived with them (41.5% and 27.4%, respectively), and occupational-technical students were far more likely to be single parents (15.2% and 11.3%, respectively). These findings supported the findings of previous studies regarding characteristics of occupational-technical students and are important to a discussion of student effort.

Student effort is defined by CCSSE (2004, 2005b) as time spent on activities that improve learning and success, and these activities may occur within or outside the classroom. The more external obligations students have, the less time they have to spend on activities that improve learning and success. Not surprisingly, Astin (1993) found a positive correlation between GPA and hours spent studying and a negative correlation between GPA and working full time and partying. This study found that more transfer students than occupational-technical students reported having a GPA of a B or higher (66.1% and 62.9%, respectively). Adelman (2006), using the NELS:88/2000 longitudinal study, found student effort required to meet the challenge of college-level mathematics,

to yield a rising GPA, and to remaining continuously enrolled was linked to academic momentum, an undeniable factor in degree completion.

Pace (1980) found that academic outcomes were more closely related to student effort than by background factors such as age, sex, race, and parental education. However, first-generation students are typically at a disadvantage in understanding the expectations of being a college student. Occupational-technical students in this study were far more likely than transfer students to be first-generation students (45.9% and 32.1% respectively). The Community College Survey of Student Engagement (2003a) found that first-generation students are generally more job-oriented and less focused on academic performance, and Ansburg (2001) found that all students' expectations frequently differed from faculty expectations about the level of effort required to succeed in a course.

Hypothesis 4 – Academic Challenge

Hypothesis 4 predicted that the level of academic challenge would differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia and was supported by the findings. Occupational-technical students, on average, were more academically challenged than transfer students ($p = <.01$). The variability in academic challenge attributable to group membership, though small, was the largest of any of the variances at 1.4%. Academic challenge is sometimes equated with rigor, and incumbent to the discussion is both the amount and nature of the academic work, i.e. does the work stretch students “to previously unrealized levels of effort, understanding and accomplishment” (Kuh et al., 2005, p. 178). Institutional commitment to increasing retention, especially

among traditionally excluded groups, includes emphasizing the importance of academic effort and setting high expectations for student success regardless of gender, ethnicity, and inherent level of student ability (Kuh et al, 1991; Kuh et al., 2005; Rendon, 1994; Tinto, 2002a, 2002b). Both of the preceding statements include the importance of “effort” in relationship to academic challenge. Therefore, one would have to ask whether occupational-technical students felt more academically challenged because they exerted less effort on their academic pursuits.

Hypothesis 5 – Student-Faculty Interaction

Hypothesis 5 predicted that the level of student-faculty interaction would differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia. This was the only hypothesis in the study not supported by the findings. There was no statistically significant difference in the level of student-faculty interaction between occupational-technical students and transfer students ($p = .84$).

Hypothesis 6 – Support for Learners

Hypothesis 6 predicted that the level of support for learners would differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia, and the hypothesis was supported by the findings. Occupational-technical students, on average, experienced more support for learners than transfer students ($p = .01$). However, the variability in support for learners attributable to group membership was quite small at .2%. Support for learners occurs both in class and out of class and emerges from the integration of a college’s mission, philosophy, organizational structure, and steadfast focus on student learning

(Kuh et al., 2005; see also CCSSE, 2005b; Tinto, 2002a, 2002b, 2003; Upcraft et al., 1989). As reiterated in the findings related to Hypothesis 8 below, support for learners is important to all students and is significantly related to students' intentions to persist.

Hypothesis 7 – Major and Intention to Persist

Hypothesis 7 predicted that the proportion of students' self-reported intention to persist would differ significantly between students in occupational-technical programs and students in transfer programs at small community colleges in Virginia. The hypothesis was supported by the findings. Intention to persist and the student's major, whether occupational-technical or transfer, were found to have a statistically significant ($p = .03$), though very weak relationship ($\Phi = .04$). The proportion of students who intended to persist as indicated by their intention to enroll in classes at their current college within the next 12 months was significantly higher for occupational-technical students (52%) than transfer students (48%). Of course, a confounding factor could be that transfer students intended to transfer to another institution to take classes rather than take classes at their current institution. Question 14 of the CCSR asked, "How likely is it that the following issues would cause you to withdraw from class or from this college?" Table 20 presents all of the responses, and the most significant difference between the two groups, understandably, is "Transfer to a 4-year college or university" with 61.7% of transfer students responding "likely" or "very likely" and only 26.9% of occupational-technical students responding "likely" or "very likely."

Hypothesis 8 – Student Engagement and Intention to Persist

Hypothesis 8 predicted that there would be a significant relationship between the student engagement variables and students' self-reported intention to persist at small community colleges in Virginia. A small statistically significant relationship existed between student effort and intention to persist ($r = .04$; $p = .05$) and support for learners and intention to persist ($r = .11$; $p = .01$). These findings reinforce the literature on two aspects of successful goal attainment: (a) the importance of students spending time on activities that improve learning and (b) the importance of institutions supporting students with myriad services and being openly committed to student success. Further analysis of the relationship of the student engagement variables to each group of students in the study was subsequently conducted.

Occupational-Technical Students

Findings. An analysis of the findings of the Pearson's correlation conducted for Hypothesis 8 in relation to occupational-technical students found a small statistically significant positive relationship between support for learners and intention to persist ($r = .06$, $p = .01$). The analysis also showed a small statistically significant *inverse* relationship between active and collaborative learning and intention to persist ($r = -.07$; $p = .01$). At first glance, this latter finding seems counterintuitive and contra to much of the literature: Both learning and retention are enhanced by active learning strategies (Amenkhienan, 2004; Astin, 1993; Braxton et al., 2000; Camarena et al., 2005; Chickering, 1981; Elder, 1997, March 11, March 19; Kolb, 1981; Kuh et al., 2005; Pascarella & Terenzini, 1991; Paul, 2004; Paul & Elder, 2000; Roderick & Carusetta, 2005; Tinto, 1993; see also Menges, 1981).

Effort and active and collaborative learning. The literature also emphasizes that active and collaborative learning requires more effort than more passive forms of learning (Astin, 1993; Braxton et al., 2000; Bruffee, 1995; CCSSE, 2005b; Elder, 1997, March 19; Imel, 1991; Smith, 2002; O'Byrne, 2003). Bonwell and Eison (1991) define active learning as involving students in "doing things and thinking about the things they are doing" (p. 2). Considering this research in conjunction with the current study related to student effort and that occupational-technical students were found to exert a lower level of student effort than transfer students, perhaps this inverse relationship between active and collaborative learning is not that surprising.

Resistance to active and collaborative learning. The benefits of student-centered instruction are neither immediate nor automatic (Felder & Brent, 1996). Active and collaborative learning sometimes brings with it student rebellion, hostility, and resentment of assigned tasks due to students having to take more responsibility for their learning when students may be used to the instructor telling them whatever they need to know. In fact, Woods (as cited in Felder & Brent, 1996) found that students forced to take responsibility for their own learning frequently went through the stages associated with trauma and grief, with some students never progressing past the strong emotion or resistance and withdrawal stages. Students may also demonstrate hostility and resentment when they are forced to work in groups with members who are "hitchhikers" or "couch potatoes" or with members who are not as intellectually astute (Bruffee, 1995; Felder & Brent, 1996; see also Imel, 1991). Occupational-technical students are, for the most part, nontraditional as were the majority of occupational-technical students in this study. Collaborative group work is a common teaching practice in adult education, and the

affirmations and problems reported above associated with active and collaborative learning are cited by Smith (2005) based on his work with adults (See also Bruffee, 1999). Also, Smith found that group members reacted to differences in age, language ability, and expertise of other members as though these differences were threats to the group, and some members were ostracized because of their differences thereby creating an “unsafe learning environment” (p. 195). Braxton et al. (2000) studied four indices of active learning and found that all *except* group work were found to have a statistically significant influence on social integration, subsequent institutional commitment, and *students’ intent to return*. The overall conclusion is that the reasons for the inverse relationship between active and collaborative learning and occupational-technical students’ intention to persist may be quite complex.

Transfer Students

An analysis of the findings of the Pearson’s correlation conducted for Hypothesis 8 in relation to transfer students found a small statistically significant positive relationship between all five student engagement variables and the intention to persist variable as follows: student-faculty interaction ($r = .07$, $p = .01$), academic challenge ($r = .0$, $p = .01$), student effort ($r = .07$, $p = .01$) active and collaborative learning ($r = .09$, $p = .05$), and support for learners ($r = .17$, $p = .05$). These findings are in keeping with the literature that these student engagement variables have a positive relationship to students’ intention to persist in college (Astin, 1977, 1984, 1993; Barefoot, 2003; Bean & Metzger, 1985; Camarena et al., 2005; CCSSE, 2003a, 2004; Chickering, 1974; Chickering & Gamson, 1987; Gatz & Hirt, 2000; Kuh et al., 1991; Kuh & Hu, 2001b; Minkler, 2002;

Omatsu, 2002; Pascarella & Terenzini, 1991; Roderick & Carusetta, 2005; Suarez-Balcazar et al., 2003; Tinto, 1993, 1997, 2002a, 2002b, 2003; Upcraft et al., 1989).

Limitations

The validity and reliability of a measurement instrument are of utmost importance to the researcher (Gay & Airasian, 2000). Psychometric measures have determined The CCSR to be both valid and reliable, but Marti (n.d.) addressed three limitations on the validity of The CCSR as follows:

1. Multiple agents control the practices being assessed in The Community College Student Report developed by CCSSE, and therefore conceptually related items may not be empirically related. One measure of student effort, for example, is that students are asked to indicate how often they prepared two or more drafts of a paper or assignment before turning it in. It is possible that students would have been willing to do this, but they may not have been taking a class where papers were assigned. This situation may very well be more likely to exist in occupational-technical programs than transfer programs and could have affected the findings of this study on student effort.
2. The questionnaire was not designed to measure a set of latent constructs a priori, making it difficult to establish the best number of factors underlying the set of items. For example, engaged students can be engaged across more than one latent construct.
3. The final CCSSE benchmarks deviated from the nine-factor confirmatory factor analysis.. A Technical Advisory Panel reviewed the results of the confirmatory factor analysis and reliability tests. Coupled with their own

expert judgment, the Panel also took into account empirical evidence about student engagement in undergraduate education. Marti (n.d.) stresses that CCSSE's goal was to create benchmarks that were "reliable, useful, and intuitively compelling to community college educators" (p. 14), but one would have to ask whether a different panel of experts might have tweaked the factors differently, eliciting different results.

Internal validity could have been affected by subject effects in two areas:

(a) subjects may not have responded candidly and instead could have given the answer they thought they should give, and (b) students self-reported their intention to persist. To address the former, CCSSE included a number of questions about the same topic asked in different ways that would hopefully diminish subject effects. With regard to self-reporting intention to persist, whether students actually take classes at their current institution within the next 12 months or follow through on their stated intention not to return are not known. Interpretations of the results as they apply to persistence are based on an assumption that students actually do what they say they will do. The literature would indicate that such an assumption is frequently false. Particularly impacting occupational-technical students' intention to persist may be whether they are offered a job they consider too good to turn down before they finish their credential, especially a job offer in a highly competitive field. Only a longitudinal study where student identification information was available would overcome the latter limitation. In allowing the 13 small community colleges in Virginia to participate in this study, however, the VCCS required that student responses be anonymous.

Two initial concerns about the sample were as follows: (a) whether the sample would include a disproportionate number of students in either occupational-technical programs or transfer programs and (b) that students who may have only been at the college for one semester would have had fewer opportunities to become engaged than participants who had been enrolled for a longer period of time. These concerns were somewhat ameliorated by the findings, and one can conclude that the random selection of classes administered the survey minimized the effects of both situations. The group sizes were relatively balanced with 1,886 (53.1%) being occupational-technical students and 1,667 (46.9%) being transfer students. Also, the percentage of students who as of spring 2005 had earned no credit hours at their current college was similar for both occupational-technical students and transfer students (9.1% and 7.9%, respectively). The percentage of students who had earned 30-44 credits was also similar for occupational-technical students and transfer students (14.4% and 16.4%, respectively).

The generalizability of the results of the study is limited to the 13 small colleges in the Virginia Community College System, i.e. colleges with no more than 4,499 students (headcount). However, these 13 colleges have their own unique institutional cultures, differ in the number and quality of support services/activities offered, and possess other environmental factors that could impact levels of student engagement. The effect of these extraneous variables was hopefully minimized through the random selection of CCSSE participants, the controlled environment in which the responses were made, and the excellent response rate. Beyond the 13 community colleges in this study, the findings may provide a foundation for dialogue at other colleges and prompt them to

disaggregate their data to examine student engagement by program area or other segments of the student population.

Implications

Student Departure

Why students leave college before attaining their educational goals is of concern to two-year and four-year higher education institutions across the nation (ACE, 2003; ACT, Inc., 2005; Bailey, 2003; Bean, 1990; Hoachlander et al., 2003; NCES, 2003; Tinto, 1987; VCCS, 2004). Only 37% of all community college students receive an associate degree or certificate within five years of enrolling (AACC & ACCT, n.d.), and only one of the 13 colleges included in this study had a graduation rate above 30% in 2002. Alfonso et al. (2005) found that occupational students pursuing an associate degree completed their degree goals less frequently than their academic (transfer) counterparts, and the baccalaureate attainment rates for transfer students were abysmal. The National Center for Education Statistics (NCES) found that about 50% of community college students started with the intent to transfer to a four-year institution, but only about 25% actually transferred within six years (NCES, 2003). Bailey (2003) found that fewer than 10% of students who began their education in two-year colleges ever completed a bachelor's degree. As the demographic data reported on the participants in this study confirmed, much of the complexity of community college students' lives lies beyond the walls and control of the institution. However, the literature resoundingly emphasizes the responsibility that administrators, faculty, and staff bear for what students experience on campus and whether students are supported holistically as they strive to attain their educational goals.

Support for Learners

The findings of this study reiterate the need for administrators, faculty, and staff to get to know the students in their institutions beyond a superficial level, and be truly student-centered, if the number of community college students who attain their educational goals is going to improve. As reiterated in this study, support for learners is significantly related to persistence for both occupational-technical students and transfer students. Support for learners is both academic and social in nature and is defined by three characteristics: (a) students perceive the college is committed to their success, (b) the college promotes positive relationships among different groups on campus, and (c) the college provides specific services students may need to achieve their academic and career plans. Support for learners permeates discussions of every other student engagement variable—active and collaborative learning, academic challenge, student effort, and student-faculty interaction—and it encompasses both academic and student affairs personnel.

Academic and social support are imperative for at-risk students. Academic support can be provided through developmental education courses, tutoring, study groups, and supplemental instruction; and social support, through counseling, mentoring, and ethnic student centers (Tinto, 1993). Colleges have learned, however, that it is not enough to provide support resources. Colleges must persuade large numbers of students to use those resources (Kuh et al., 2005; Helfgot, 1998; Pascarella, 1998). Both occupational-technical and transfer students in this study possessed the risk factors cited in the literature that would jeopardize students attaining their educational goals, and both groups require support services particular to their needs. Even though more occupational-

technical students than transfer students were first-generation, working full-time, caring for dependents, single parents, financially independent, and a member of a racial minority, students in both groups possessed these risk factors. An almost equal number of occupational-technical students and transfer students cited being academically unprepared as a “likely” or “very likely” reason why they might withdraw from college (17.3% and 17.4%, respectively). Also, an almost equal number of occupational-technical students and transfer students had neither a high school diploma nor GED (1.5% and 1.3%, respectively). Over a third of both groups indicated that “working full-time” and “lack of finances” could lead to their withdrawal from college. Student focus groups as well as faculty and staff interactions with students can help practitioners more accurately determine unmet student needs.

Within the classroom, the faculty member controls academic support and the learning environment. Menges (1981) stated that instructional method should be “appropriate for the learners’ intellectual and motivation levels” (p. 556) and should be selected based on the characteristics of students, teachers, and intended learning outcomes. The findings of this study support Menges’ view and indicate that as important as active and collaborative learning are to developing critical thinking and problem-solving skills, thinking deeply about concepts rather than merely memorizing facts, and learning to work effectively in teams, *effective* active and collaborative learning does not “just happen.” In fact, a study by Braxton et al. (2000) found that class discussions and higher order thinking activities positively influenced social integration, institutional commitment, and persistence, but group work did not have a statistically significant effect on either social integration or persistence. Thus, there appears to be a dichotomy

between active learning and collaborative learning, with collaborative learning taking far more skill on both the part of faculty and students.

Throughout the literature, the admonition to challenge students is accompanied by the caution that challenge must be balanced with support. Faculty must hone their skills in active and collaborative learning pedagogy and ensure that students have the skills they need to be successful in what, for many, may be a totally new learning experience. While collaborative learning has the potential to reap great benefits, it also carries risk. Without proper skills, the group learning experience can be ineffective or disastrous and can lead to frustration and resentment (Oakley et al., 2004; see also Chickering, 1969).

If community colleges are to increase transfer rates, support must be available to help transfer students transition to the baccalaureate institution and to keep transfer students from lowering their educational goals while at the community college. Pascarella et al. (1999) found that the likelihood of students lowering their goal to below bachelor's degree attainment was 60% higher for students who entered a community college than it was for students who started at a four-year institution. That all five student engagement variables were positively related to transfer students' intention to persist underscores institutional obligations to strengthen the probability that transfer students will indeed transfer. Martinez and Scroggins (1998) and SCHEV (2003) reinforced the need for colleges to support students who want to transfer. Community colleges must have "transfer going" cultures, and a "transfer receptive" culture must exist on four-year campuses that hope to attract students from the community college (Chase & Herrera, 2006). The following are a few of the strategies community colleges can implement to create a "transfer going" culture and support transfer students:

1. Offer workshops to students and their families that answer questions about transfer that *should* be asked but that students and their families may not know to ask.
2. Assist students with the paperwork involved in transfer.
3. Place transfer information prominently in college catalogs, course schedules, websites, and bulletin boards.
4. Create virtual transfer centers.
5. Communicate all transfer options to community college students, including transfer to highly selective colleges, not just neighborhood colleges.
6. Highlight successful transfer students in student newspapers and invite transfers back to the community college to talk to students and their families.
7. Collaborate with four-year institutions to align curriculum, design articulation agreements and transfer admission guarantees, and create transitioning programs that produce a “transfer receiving” culture at the baccalaureate institution.

Educational Goals

Effective practice requires that educators know the students attending their institutions not only to provide appropriate support but also to help students clarify their educational goals. Not all students enroll in college knowing what program of study they want to pursue, and students certainly do not know what they do not know—options about programs of study and careers that maximize their potential. The literature indicates that family background and educational experiences are particularly important to students’ selection of a major when they enroll in college. Proper assessment and

guidance by counselors and academic advisors is an ethical responsibility, particularly for first-generation students, high-risk students, females, students with fewer than 30 credit hours, students who are undecided on a major, and students who pursued a vocational program in high school and who may be “tracked” into similar programs at the community college. While the sample in this study was relatively balanced between the two groups, occupational-technical students outnumbered transfer students. This is certainly not to imply that all students must get a bachelor’s degree in order to reap the economic and social benefits of higher education, but it is to emphasize that students should understand their options and be encouraged to maximize their potential.

Community colleges should inform all students of their transfer options and possibilities. After first-semester mid-term grades are assigned, colleges can begin identifying capable students, regardless of their major, by looking for students with a minimum 2.5-2.8 GPA on college-level English and math classes. Faculty can act as champions of transfer by recognizing student potential and encouraging students to attain their bachelor’s degree. Also, letters to students that praise their success and invite them to discuss with a counselor transfer to a baccalaureate institution may encourage students to consider their transfer options. Students who have never thought of attaining a bachelor’s degree typically need to hear the message five-to-seven times before they take seriously the possibility that they could achieve this goal, and personal encouragement is essential (Chase & Herrera, 2006).

Policies and Practices

This study disaggregated the CCSSE data in a new way by examining differences between occupational-technical students and transfer students based on eight research

questions. The students in this study were as eclectic in their characteristics as students described in other studies reported in the literature. While the small effect sizes for statistically significant differences on student engagement measures in this study seemingly do not demand significant policy changes, the results for individual colleges could be quite different; and even small changes in practice could benefit students and improve educational goal attainment. The more institutions disaggregate the data on their student populations, the more evidence those institutions will have on which to base policies and practices that impact student persistence to goal attainment.

Recommendations for Further Research

Building a culture of inquiry and evidence is critical to designing appropriate interventions to improve student success. This study was just one attempt to further disaggregate data available on community college students. The findings compel one to consider the complexity of student engagement and its relationship to persistence and educational goal attainment.

Student Engagement

Much of the research on student success and goal attainment has been conducted in a baccalaureate setting, but the characteristics and backgrounds of community college students differ from the characteristics and backgrounds of typical students at a four-year baccalaureate institution (Bailey, Leinbach, et al., 2004). Those differences are reflected by approximately 50% of two-year college students who leave at the end of their first year compared to 28.5% of students at four-year institutions (Tinto, 1993). Opportunities are rich for future research on the nuances of community college students' engagement with their institutions.

Individual community colleges may also want to analyze CCSSE results to see whether differences exist between their own populations of occupational-technical students and transfer students on each of the five student engagement variables and intention to persist. Only by disaggregating the data and studying campus culture and how it lends itself to building community can colleges ascertain whether they are creating an environment for student engagement. Only by studying student engagement and related issues can colleges truly devise interventions appropriate to their own students and improve learning and persistence to educational goal attainment.

Support for Learners

Considering the tremendous impact support for learners has on persistence and goal attainment, Pascarella's (1998) admonition with respect to support for learners warrants additional study and subsequent action. Pascarella urged student affairs professionals and college administrators to work to raise the perception by American society of community colleges and their students as being second-class. In his work, Pascarella found that behaviors and attitudes of community college professionals can undermine students' confidence to pursue their educational goals.

The literature also indicates that there is much work yet to be done to support minority students and build campus cultures that value diversity, particularly the diversity represented by ethnic and racial minorities (Ancis et al., 2000; Nora & Cabrera, 1996; Pascarella & Terenzini, 1991; Schwitzer et al., 1999; Suarez-Balcazar et al., 2003). Most of the study surrounding these issues has been conducted on four-year college campuses. Typically, minority students have been underserved throughout their educational experience, and community colleges can play an important role in supporting minority

students to goal attainment. Research that enriches the literature on promising practices in this area will be valued.

Finances

Tinto (1995) posits that universities have sometimes overestimated the importance of finances to retention by reason of exit interviews and surveys in which students rank “financial aid” or “personal reasons” most frequently as their reason for leaving. Tinto found that students were actually assessing the value of their college education as measured by the quality of their academic and social experiences compared to the cost of that education. In the current study, 49% of the community college students surveyed said they were “likely” or “very likely” to leave college because of finances. It is important to know if community college students are leavers because of purely financial reasons or because they are dissatisfied with their college experience and the adjudged value of the education they are receiving. If interviews and exit surveys are not the best way to discern students’ reasons for leaving, what alternatives would more accurately capture this information? What are students doing a year after they leave? It would be interesting to know if students who cite finances as their reason for leaving go on to pursue their education at a different institution.

Sense of Community

Because of the importance of support for learners and the sense of community that is an integral part of that support, community colleges may want to assess students’ perceptions of community on their campus. The typical community college does not generate the alumni loyalty that four-year campuses do. One reason posited for that lack of loyalty is that most community colleges are commuter campuses rather than residential

where a sense of community would naturally be higher. How much does a sense of community relate to loyalty and persistence to degree attainment? How important are the rituals and symbols prevalent on four-year campuses to community college students and their persistence?

An important area for future research related to sense of community, and supported by the findings of this study, is whether perception of community is more important to one demographic group than another. Also, whether social engagement is a developmental prerequisite for intellectual engagement and whether older students who are immersed in external obligations go through similar needs for social connections before they are ready for academic involvement have not been fully studied (Tinto, 1993). Bean and Metzger (1985) studied the attrition of traditional and nontraditional students and concluded that the chief difference between the attrition of the two groups was that nontraditional students were more affected by the external environment than by social integration.

Student Effort

Regarding the findings that occupational-technical students exerted lower levels of student effort than transfer students, there are several opportunities for future research:

- (a) Are occupational-technical students less motivated than transfer students to do well?
- (b) Do occupational-technical students exert less effort because of time limitations indicative of their external obligations?
- (c) Are the questions designed to measure student effort on The CCSR not as applicable to occupational-technical students as transfer students?

Academic Challenge and Student Effort

This study found that occupational-technical students experienced a higher level of academic challenge than transfer students, and within the context of other findings, a number of interesting possibilities for future research exist. Are occupational-technical programs more rigorous than transfer programs, or is it that the lower level of effort expended by occupational-technical students made the programs seem more challenging? Levesque et al. (2000) found that vocational students typically had higher grade-point averages than academic students, with 24% of vocational majors reporting a GPA of 3.5 or more compared to 20% of academic majors. This study found that more transfer students than occupational-technical students reported having a GPA of a B or higher (66.1% and 62.9%, respectively). Were the lower GPAs for occupational-technical students a reflection of the rigor of occupational-technical programs, or were they due to the lower level of effort expended by the students in the programs? Bailey, Leinbach, et al. (2004) found that occupational students were less likely than academic students to have taken a remedial course in college (20% versus 23%) and surmised that this could indicate lower academic requirements in occupational programs.

Active and Collaborative Learning

The literature and previous studies have supported active and collaborative learning as leading to higher levels of learning and retention, and the findings of this study supported the importance of active and collaborative learning for transfer students. However, there does appear to be a dichotomy between active learning and collaborative learning, with collaborative learning taking far more skill on both the part of faculty and students. Considering the inverse relationship between active and collaborative learning

and intention to persist for occupational-technical students, it would be interesting to try to determine whether that dichotomy influenced the findings.

Therefore, future research might attempt to answer a number of questions, such as: What aspects of active and collaborative learning may not appeal to students? Is it the fact that students have to exert more effort? Do students resent being asked to take responsibility for their own learning? Does group work require meeting time outside of class when other obligations make it difficult to meet with the group? Are faculty adequately trained to implement active and collaborative learning pedagogy? Are group grades typically assigned without an individual grade reflecting a students' individual effort? Are students equipped with the skills they need to be successful in active and collaborative learning? Does the appropriate balance exist between active and collaborative learning and support for learners? To what extent do personality type and learning style play a role in the success of active and collaborative learning with community college students? A mixed-method study including anonymous survey responses and student and faculty focus groups might contribute significantly to what is known about active and collaborative learning in community colleges.

Conclusion

As indicated in study after study, the benefits of postsecondary *attendance* versus *completion* are reduced. Success is what counts. This study filled a gap in the research on engagement, and the findings provide the foundation for a dialogue on student engagement and persistence of occupational-technical students and transfer students. Those important conversations can lead to interventions that enhance the likelihood of student success within both groups. The findings of the study highlighted differences

between the two groups' levels of student engagement on a variety of measures and their intention to persist at their current college. Students at small community colleges in Virginia, regardless of major, were found to possess the risk factors typical of community college students across the nation, with occupational-technical students, as expected, at higher risk than transfer students.

The multifaceted nature of student engagement, coupled with the tremendous diversity of community college students, provides a prolific field for future research. The complexity of students' lives is reflected in the complexity of developing the most appropriate interventions to improve student retention and educational goal attainment, and this study has reiterated the responsibility of community college employees at every level for student success. Disaggregating the data and examining more closely specific student populations is a factor in taking that responsibility seriously. Administrators, faculty, and staff have been given a new lens through which to examine theories of student departure and student engagement—especially the pervasive nature of support for learners.

Taken in concert with the supporting literature, the implications of the findings are rich. The interplay of community college students' demographic characteristics, risk factors, and enrollment goals with their experiences once they enroll in college invites rigorous study. Much of the research on student engagement has been conducted with students in four-year institutions, and the results of this study reiterate the need for community colleges to study how groups of students engage differently and are impacted by the total college environment. Developing appropriate, intentional interventions to improve the retention and graduation rates of community college students requires that

study. Practitioners in community colleges welcome every fresh insight provided by the research as they seek to keep their open doors from revolving and help keep America's promise of equity and opportunity.

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Appendix A

The Community College Student Report

Instructions: It is essential that you use a No. 2 pencil to complete this survey. Mark your answers as shown in the following example: ● Correct Mark ○ X ○ Incorrect Marks

1. Did you begin college at this college or elsewhere? ☐ Started here ☐ Started elsewhere
2. Thinking about this current academic term, how would you characterize your enrollment at this college? ☐ Full-time ☐ Less than full-time
3. Have you taken this survey in another class this term? ☐ Yes ☐ No

4. In your experiences at this college during the current school year, about how often have you done each of the following?

- | | Very often | Often | Sometimes | Never |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| a. Asked questions in class or contributed to class discussions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Made a class presentation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Prepared two or more drafts of a paper or assignment before turning it in | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Worked on a paper or project that required integrating ideas or information from various sources | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Come to class without completing readings or assignments | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f. Worked with other students on projects during class | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g. Worked with classmates outside of class to prepare class assignments | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| h. Tutored or taught other students (paid or voluntary) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| i. Participated in a community-based project as a part of a regular course | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| j. Used the Internet or instant messaging to work on an assignment | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| k. Used e-mail to communicate with an instructor | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| l. Discussed grades or assignments with an instructor | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| m. Talked about career plans with an instructor or advisor | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| n. Discussed ideas from your readings or classes with instructors outside of class | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| o. Received prompt feedback (written or oral) from instructors on your performance | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| p. Worked harder than you thought you could to meet an instructor's standards or expectations | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| q. Worked with instructors on activities other than coursework | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| r. Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| s. Had serious conversations with students of a different race or ethnicity other than your own | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| t. Had serious conversations with students who differ from you in terms of their religious beliefs, political opinions, or personal values | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| u. Skipped class | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

5. During the current school year, how much has your coursework at this college emphasized the following mental activities?

- | | Very much | Quite a bit | Some | Very little |
|---|-----------------------|-----------------------|-----------------------|-----------------------|
| a. Memorizing facts, ideas, or methods from your courses and readings so you can repeat them in pretty much the same form | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. Analyzing the basic elements of an idea, experience, or theory | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. Synthesizing and organizing ideas, information, or experiences in new ways | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. Making judgments about the value or soundness of information, arguments, or methods | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. Applying theories or concepts to practical problems or in new situations | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f. Using information you have read or heard to perform a new skill | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

PLEASE DO NOT MARK IN THIS AREA



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6. During the current school year, about how much reading and writing have you done at this college?

None	1 to 4	5 to 10	11 to 20	More than 20
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

a. Number of assigned textbooks, manuals, books, or book-length packs of course readings

b. Number of books read on your own (not assigned) for personal enjoyment or academic enrichment

c. Number of written papers or reports of any length

7. Mark the response that best represents the extent to which your examinations during the current school year have challenged you to do your best work at this college.

Extremely challenging ⑦ ⑥ ⑤ ④ ③ ② ① Extremely easy

8. Which of the following have you done, are you doing, or do you plan to do while attending this college?

I have done	I plan to do	I have not done nor plan to do
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

a. Internship, field experience, co-op experience, or clinical assignment

b. English as a second language course

c. Developmental/remedial reading course

d. Developmental/remedial writing course

e. Developmental/remedial math course

f. Study skills course

g. Honors course

h. College orientation program or course

i. Organized learning communities (linked courses/study groups led by faculty or counselors)

9. How much does this college emphasize each of the following?

Very much	Quite a bit	Some	Very little
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

a. Encouraging you to spend significant amounts of time studying

b. Providing the support you need to help you succeed at this college

c. Encouraging contact among students from different economic, social, and racial or ethnic backgrounds

d. Helping you cope with your non-academic responsibilities (work, family, etc.)

e. Providing the support you need to thrive socially

f. Providing the financial support you need to afford your education

g. Using computers in academic work

10. About how many hours do you spend in a typical 7-day week doing each of the following?

	None	1 - 5	6 - 10	11 - 20	21 - 30	More than 30
a. Preparing for class (studying, reading, writing, rehearsing, doing homework, or other activities related to your program)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Working for pay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Participating in college-sponsored activities (organizations, campus publications, student government, intercollegiate or intramural sports, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Providing care for dependents living with you (parents, children, spouse, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Commuting to and from classes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Mark the number that best represents the quality of your relationships with people at this college.

Your relationship with:

a. Other Students

Friendly, supportive, sense of belonging ⑦ ⑥ ⑤ ④ ③ ② ① Unfriendly, unsupportive, sense of alienation

b. Instructors

Available, helpful, sympathetic ⑦ ⑥ ⑤ ④ ③ ② ① Unavailable, unhelpful, unsympathetic

c. Administrative Personnel & Offices

Helpful, considerate, flexible ⑦ ⑥ ⑤ ④ ③ ② ① Unhelpful, inconsiderate, rigid

12. How much has YOUR EXPERIENCE AT THIS COLLEGE contributed to your knowledge, skills, and personal development in the following areas?

	Very much	Quite a bit	Some	Very little
a. Acquiring a broad general education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Acquiring job or work-related knowledge and skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Writing clearly and effectively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Speaking clearly and effectively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Thinking critically and analytically	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Solving numerical problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Using computing and information technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Working effectively with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Learning effectively on your own	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Understanding yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Understanding people of other racial and ethnic backgrounds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l. Developing a personal code of values and ethics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
m. Contributing to the welfare of your community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
n. Developing clearer career goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
o. Gaining information about career opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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PLEASE DO NOT MARK IN THIS AREA



13. This section has three parts. Please answer all three sections, indicating (1) HOW OFTEN you use the following services, (2) HOW SATISFIED you are with the services, and (3) HOW IMPORTANT the services are to you AT THIS COLLEGE.

	(1) Frequency of Use				(2) Satisfaction				(3) Importance		
	Often	Some- times	Rarely/ Never	Don't know/ N.A.	Very	Some- what	Not at all	N.A.	Very	Some- what	Not at all
a. Academic advising/planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Career counseling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Job placement assistance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Peer or other tutoring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Skill labs (writing, math, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Child care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Financial aid advising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Computer lab	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. Student organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j. Transfer credit assistance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k. Services to students with disabilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. How likely is it that the following issues would cause you to withdraw from class or from this college? (Please respond to each item)

	Very likely	Likely	Some- what likely	Not likely
a. Working full-time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Caring for dependents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Academically unprepared	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Lack of finances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Transfer to a 4-year college or university	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. How supportive are your friends of your attending this college?

☐ Extremely ☐ Somewhat
☐ Quite a bit ☐ Not very

16. How supportive is your immediate family of your attending this college?

☐ Extremely ☐ Somewhat
☐ Quite a bit ☐ Not very

17. Indicate which of the following are your reasons/goals for attending this college. (Please respond to each item)

	Primary goal	Secondary goal	Not a goal
a. Complete a certificate program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Obtain an associate degree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Transfer to a 4-year college or university	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Obtain or update job-related skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Self-improvement/personal enjoyment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Change careers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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PLEASE DO NOT MARK IN THIS AREA

18. Indicate which of the following are sources you use to pay your tuition at this college? (Please respond to each item)

- a. My own income/savings
- b. Parent or spouse/significant other's income/savings
- c. Employer contributions
- d. Grants and scholarships
- e. Student loans (bank, etc.)
- f. Public assistance

Major source	Minor source	Not a source
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. Since high school, which of the following types of schools have you attended other than the one you are now attending? (Please mark all that apply)

- ☐ Proprietary (private) school or training program
- ☐ Public vocational-technical school
- ☐ Another community or technical college
- ☐ 4-year college or university
- ☐ None

20. When do you plan to take classes at this college again?

- ☐ I will accomplish my goal(s) during this term and will not be returning
- ☐ I have no current plan to return
- ☐ Within the next 12 months
- ☐ Uncertain

21. At this college, in what range is your overall college grade average?

- ☐ A
- ☐ A- to B+
- ☐ B
- ☐ B- to C+
- ☐ C
- ☐ C- or lower
- ☐ Do not have a GPA at this school
- ☐ Pass/fail classes only

22. When do you most frequently take classes at this college? (Mark one only)

- ☐ Day classes (morning or afternoon)
- ☐ Evening classes
- ☐ Weekend classes

23. How many TOTAL credit hours have you earned at this college, not counting the courses you are currently taking this term?

- ☐ None
- ☐ 1-14 credits
- ☐ 15-29 credits
- ☐ 30-44 credits
- ☐ 45-60 credits
- ☐ Over 60 credits

24. At what other types of institutions are you taking classes this term? *(Please mark all that apply)*
- ☐ None
 - ☐ High school
 - ☐ Vocational/technical school
 - ☐ Another community or technical college
 - ☐ 4-year college/university
 - ☐ Other
25. How many classes are you *presently* taking at OTHER institutions?
- ☐ None
 - ☐ 1 class
 - ☐ 2 classes
 - ☐ 3 classes
 - ☐ 4 classes or more
26. Would you recommend this college to a friend or family member?
- ☐ Yes ☐ No
27. How would you evaluate your entire educational experience at this college?
- ☐ Excellent
 - ☐ Good
 - ☐ Fair
 - ☐ Poor
28. Do you have children who live with you?
- ☐ Yes ☐ No
29. Mark your age group.
- ☐ Under 18
 - ☐ 18 to 19
 - ☐ 20 to 21
 - ☐ 22 to 24
 - ☐ 25 to 29
 - ☐ 30 to 39
 - ☐ 40 to 49
 - ☐ 50 to 64
 - ☐ 65+
30. Your sex:
- ☐ Male ☐ Female
31. Are you married?
- ☐ Yes ☐ No
32. Is English your native (first) language?
- ☐ Yes ☐ No

33. Are you an international student or foreign national?

- ☐ Yes ☐ No

34. What is your racial identification? (Mark only one)

- ☐ American Indian or other Native American
☐ Asian, Asian American or Pacific Islander
☐ Native Hawaiian
☐ Black or African American, Non-Hispanic
☐ White, Non-Hispanic
☐ Hispanic, Latino, Spanish
☐ Other

35. What is the highest academic credential you have earned?

- ☐ None
☐ High school diploma or GED
☐ Vocational/technical certificate
☐ Associate degree
☐ Bachelor's degree
☐ Master's/doctoral/professional degree

36. What is the highest level of education obtained by your:

- a. Not a high school graduate
b. High school diploma or GED
c. Some college, did not complete degree
d. Associate degree
e. Bachelor's degree
f. Master's degree/1st professional
g. Doctorate degree
h. Unknown

Father

Mother

- ☐
☐
☐
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- ☐
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☐
☐
☐
☐

37. Using the list provided, please fill in the bubbles that correspond to the code indicating your program or major. Using the first column, indicate the first number in the program code, using the second column, indicate the second number in the program code.

0	0
1	1
2	2
3	3
4	
5	
6	
7	
8	
9	

38. Please provide your student identification number by filling in the corresponding bubbles. For example, in the first column, indicate the first number or letter in your student ID number, and so forth. (OPTIONAL)

(Please begin here)

[illegible]

Your responses will remain confidential and individual responses will not be reported.

Thank you for sharing your views.

Additional Items (Please respond to these items if requested)

- | | | | | |
|-------|---|---|---|---|
| 1. A | B | C | D | E |
| 2. A | B | C | D | E |
| 3. A | B | C | D | E |
| 4. A | B | C | D | E |
| 5. A | B | C | D | E |
| 6. A | B | C | D | E |
| 7. A | B | C | D | E |
| 8. A | B | C | D | E |
| 9. A | B | C | D | E |
| 10. A | B | C | D | E |
| 11. A | B | C | D | E |
| 12. A | B | C | D | E |
| 13. A | B | C | D | E |
| 14. A | B | C | D | E |
| 15. A | B | C | D | E |
| 16. A | B | C | D | E |
| 17. A | B | C | D | E |
| 18. A | B | C | D | E |
| 19. A | B | C | D | E |
| 20. A | B | C | D | E |

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Appendix B

CCSSE Program Code Sheet

- 01 = Agriculture
- 02 = Architecture & Related Programs (city/urban, community/regional planning, etc.)
- 03 = Biological Sciences/Life Sciences (biology, biochemistry, botany, zoology, etc.)
- 04 = Business Management & Administrative Services (accounting, business admin.,
marketing, management, real estate, etc.)
- 05 = Communications (advertising, journalism, television/radio, etc.)
- 06 = Computer & Information Sciences
- 07 = Conservation & Renewable Natural Resources (fishing forestry, wildlife, etc.)
- 08 = Construction Trades (masonry, carpentry, plumbing & pipe fitters, etc.)
- 09 = Education
- 10 = Engineering
- 11 = English Language & Literature/Letters (composition, creative writing, etc.)
- 12 = Foreign Languages & Literatures (French, Spanish, etc.)
- 13 = Health Professions & Related Sciences (nursing, physical therapy, dental, EMT,
veterinary, etc.)
- 14 = Law & Legal Studies
- 15 = Liberal Arts & Sciences, General Studies & Humanities
- 16 = Library Science
- 17 = Mathematics
- 18 = Mechanics & Repairers (A/C, heating & refrigeration, electrical/electronic
equipment, etc.)
- 19 = Military Technologies

- 20 = Multi-Interdisciplinary Studies (international relations, ecology, environmental studies, etc.)
- 21 = Parks, Recreation, Leisure & Fitness Studies
- 22 = Personal & Miscellaneous Services (gaming & sports, cosmetic, culinary, etc.)
- 23 = Physical Sciences (astronomy, chemistry, geology, physics, etc.)
- 24 = Precision Production Trades (drafting, graphic, precious metal worker, etc.)
- 25 = Protective Services (criminal justice & corrections, fire protection, etc.)
- 26 = Psychology
- 27 = Public Administration & Services (public policy, social work, etc.)
- 28 = Science Technologies (biological technology, nuclear & industrial radiological technology, etc.)
- 29 = Social Sciences & History (anthropology, archaeology, economics, geography, history, political science, sociology, etc.)
- 30 = Theology Studies & Religious Vocations (philosophy, ministry, etc.)
- 31 = Transportation & Materials Moving Workers (air, vehicle, & water workers, etc.)
- 32 = Visual & Performing Arts (art, music, theater, dance, etc.)
- 33 = Vocational Home Economics (child care/guidance worker & manager, clothing, apparel, & textile worker, housekeeping, etc.)
- 34 = Undecided
- 35 = Other
- 36 = Not applicable

Appendix C

CCSSE Program Codes and Virginia Community College Program Type

Code	Program Name (MAJOR)	Type
01	Agriculture	Occupational- Technical
02	Architecture & Related Programs (city/urban, community/regional planning, etc.)	Occupational- Technical
03	Biological Sciences/Life Sciences (biology, biochemistry, botany, zoology, etc.)	Transfer
04	Business Management & Administrative Services (accounting, business administration, marketing, management, real estate, etc.)	Mixed
05	Communications (advertising, journalism, television/radio, etc.)	No major
06	Computer & Information Sciences	Mixed
07	Conservation & Renewable Natural Resources (fishing, forestry, wildlife, etc.)	Occupational- Technical
08	Construction Trades (masonry, carpentry, plumbing, & pipe fitters, etc.)	Occupational- Technical
09	Education	Transfer
10	Engineering	Mixed

Code	Program Name (MAJOR)	Type
11	English Language & Literature/Letters	Transfer
12	Foreign Languages & Literatures (French, Spanish, etc.)	Transfer
13	Health professions & Related Sciences (nursing, physical therapy, dental, EMT, veterinary, etc.)	Occupational- Technical
14	Law & Legal Studies	Transfer
15	Liberal Arts & Sciences, General Studies & Humanities	Transfer
16	Library Science	Transfer
17	Mathematics	Transfer
18	Mechanics & Repairers (A/C, heating & refrigeration, electrical/electronic equipment, etc.	Occupational- Technical
19	Military Technologies	No major
20	Multi/Interdisciplinary Studies (international relations, ecology, environmental studies, etc.	No major
21	Parks, Recreation, Leisure & Fitness Studies	No major
22	Personal & Miscellaneous Services (gaming & sports, cosmetic, culinary, etc.	Occupational- Technical
23	Physical Sciences (astronomy, chemistry, geology, physics, etc.)	Transfer
24	Precision Production Trades (drafting, graphic, precious metal worker, etc.)	Occupational- Technical

Code	Program Name (MAJOR)	Type
25	Protective Services (criminal justice & corrections, fire protection, etc.)	Occupational- Technical
26	Psychology	Transfer
27	Public Administration & Services (public policy, social work, etc.)	Transfer
28	Science Technologies (biological technology, nuclear & industrial radiological technology, etc.)	Transfer
29	Social Sciences & History (anthropology, archaeology, economics, geography, history, political science, sociology, etc.)	Transfer
30	Theology Studies & Religious Vocations (philosophy, ministry, etc.)	Transfer
31	Transportation & Materials Moving Workers (air, vehicle & water workers, etc.)	Occupational- Technical
32	Visual & Performing Arts (art, music, theater, dance, etc.)	Transfer
33	Vocational Home Economics (child care/guidance worker & manager, clothing, apparel, & textile worker, housekeeping, etc.)	Occupational- Technical

VITA

Janet T. Laughlin

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200 Linden Drive
Danville, Virginia 24541

EDUCATION

Doctor of Philosophy Candidate, Community College Leadership

Old Dominion University, Norfolk, Virginia.

Expected date of completion: December 2006

Dissertation: "An Examination of Differences Between Occupational-Technical Student and Transfer Student Engagement at Small Community Colleges in Virginia"

Master of Business Administration

Averett College, Danville, Virginia, May 1987

Bachelor of Science, Business Education

Palm Beach Atlantic College, West Palm Beach, Florida, May 1980

EXPERIENCE

DANVILLE COMMUNITY COLLEGE, Danville, Virginia 1992-2006; 1980-1988

Coordinator, Student Success Center, July 2005-Present

Professor of Administrative Support Technology, August 2004-Present

- Executed the newly formed Student Success Center charged with implementing the college's Quality Enhancement Plan and Achieving the Dream grant initiative, requiring collaboration with multiple constituencies, including internal and external stakeholders
- ♦ *The Quality Enhancement Plan (QEP)*
 - Organized pilot of SDV 100 – College Success Skills in four learning communities in fall 2005, with additional sections offered in subsequent semesters, resulting in full implementation capability for fall 2006—a year ahead of schedule
 - Collaborate with personnel in Student Services, Tutoring Center, and both academic divisions to provide appropriate interventions and support to students

- Gather and analyze data for formative and summative evaluation of strategies designed to enhance student success
- Organize workshops for students to support SDV 100
- Organize faculty and staff development activities to support the QEP
- Report monthly to College Management Team and faculty
- Developed Student Success Center web site
- ♦ ***The Achieving the Dream Grant Initiative***
 - Collaborate with Division Deans to target at-risk students for learning communities and establish the learning communities
 - Coordinate meetings with learning community faculty to ensure collaboration and student support
 - Co-chair Achieving the Dream Core Team and coordinate committee activities, resulting in greater involvement of faculty and staff in the initiative
 - Developed a Timeline and Evaluation Plan cited by Coach as a model document
 - Gather and analyze data for formative and summative evaluation of strategies designed to enhance student success
 - Prepare annual report for distribution to stakeholders and Lumina
 - Oversee budget allocations and expenditures
 - Organize visits of coaches and external evaluators
 - Communicate the objectives and progress of Achieving the Dream to college community
 - Facilitate internal and external focus groups
 - Arrange supplemental instruction and activities for students
 - Organize faculty and staff development activities to support Achieving the Dream

Southern Association of Colleges and Schools (SACS) Accreditation Liaison
 July 2004-Present

- ♦ Directed the preparation and submission of documents required for reaffirmation of accreditation, as well as preparing the college for the on-site visit
 - Compliance Certification Document
 - Quality Enhancement Plan
 - Focused Report
 - Response to the On-Site Visit
- Results: Only one recommendation on compliance issues and no recommendations on Quality Enhancement Plan***
- ♦ Oversee on-going compliance with *Principles of Accreditation* and appropriate reporting

Co-Chair, Regional Center for Teaching Excellence (RCTE)

August 1999-Present

Central Division, Virginia Community College System

- ◆ Organize professional development workshops for faculty and staff at six community colleges
- ◆ Serve on the Virginia Community College System Professional Development Committee
 - Assist with organizing, implementing, and evaluating New Horizons Conference
 - Member, Grant Review Committee

Assistant Professor of Administrative Support Technology (AST)

August 1992-July 2004

- ◆ Taught business communications, intercultural business communications, business letter writing, office administration, word processing, desktop publishing, job search strategies, and keyboarding
- ◆ Participated in international faculty exchanges to England and The Netherlands, hosting visiting faculty and organizing schedule to facilitate interaction with DCC students, faculty, and staff
- ◆ Monitored and developed curriculum to ensure student workplace readiness
- ◆ Assessed dual enrollment courses to ensure campus course equivalency
- ◆ Developed paralegal program in collaboration with local attorneys
- ◆ Gathered data and prepared program assessment reports with colleague
- ◆ Advised student club, International Association of Administrative Professionals; organized fund raisers and took students to regional and national conferences
- ◆ Planned AST Advisory Committee meetings to gain input from community on curriculum
- ◆ Coordinated annual seminar for AST and information technology students; invited area business high school students
- ◆ Assisted program graduates in securing employment
- ◆ Developed the following distance learning classes: job search strategies, MS-Word 2002, and intercultural business communications

College Organization/Committee Participation

- ◆ Current: College Management Team; Vice President's Council; Co-chair, Achieving the Dream Core Team; Leadership Academy development committee; Human Resources and Employee Development Committee; Planning Team (past chair and vice-chair); screening committees for administrative positions
- ◆ Past: International, Faculty Steering, Social, High School Partnerships, and Women's Awareness Week Committees; screening committees for faculty and staff positions; [articipated in, and then became a facilitator for, the Virginia Master Teacher Seminar

Grant-Writing Experience

- ◆ Have written and received the following grants:
 - Perkins Grants to secure funds for new computer lab, software, student conferences, and professional development
 - Corning grants to secure funds for student conferences~\$1,500
 - Virginia Community College System research grant to develop intercultural business communications web class~\$5,000
 - Virginia Community College System mini-grant to support professional development activities - \$1,500
- ◆ Collaborated on the research, writing, and editing of the Achieving the Dream grant received from the Lumina Foundation - \$400,000
- ◆ Assist faculty and staff with developing and writing VCCS mini-grants and research grants; 100% success, summer 2006 - \$3,000
- ◆ Reviewed and made recommendations for the Educational Opportunity Center grant; funded 2006

SOUTHERN NATIONAL BANK, Greensboro, North Carolina (now BB&T)
August 1991-August 1992

Management Training Program - Retail Banking (June 1992-August 1992)

- ◆ Trained for branch manager position

Assistant to President (August 1991-June 1992)

- ◆ Prepared correspondence and commercial loan documents
- ◆ Served as Personal Computer Support Coordinator for Greensboro branches

GEORGE WASHINGTON HIGH SCHOOL, Danville, Virginia
August 1988-June 1991

Business Education Teacher

- ◆ Taught accounting, keyboarding, employment seminar, computer concepts, computers for the college bound, business computer applications (included BASIC programming, spreadsheet, database, and word processing applications)
- ◆ Sponsored Future Business Leaders of America Club
- ◆ Served as core team member, Program for Assisting Students in crisis
- ◆ Served on numerous committees

SINCLAIR & HEARD, Danville, Virginia (formerly Fowler, Sinclair & Heard)
July 1984-August 1988

Real Estate Paralegal

- ◆ Managed real estate function, supervising three secretaries
- ◆ Initiated office automation
- ◆ Coordinated mortgage loan closings
- ◆ Examined titles to property, prepared title letters, and HUD-1 Settlement Statements
- ◆ Drafted legal documents

DANVILLE COMMUNITY COLLEGE, Danville, Virginia
June 1980-June 1988

Adjunct Faculty

- ♦ Taught keyboarding, shorthand, business machines, filing and records management, word processing, and office procedures
- ♦ Temporary full-time replacement (1983-84) with additional responsibilities
- ♦ Coordinated Jump Rope for Heart campaign for the American Heart Association
- ♦ Organized secretarial seminars
- ♦ Gathered statistical data, co-authored, and edited the Secretarial Science Department self-study

PUBLICATIONS

Laughlin, J. (1999, Fall). Multiple Intelligences. In *Inquiry*, 4-18. Richmond, VA: Virginia Community College System.

Laughlin, J. & Fleming, P. (1999, Spring). Innovations and Motivators from the Master Teacher Seminar. In *Inquiry*, 16-25. Richmond, VA: Virginia Community College System.

PRESENTATIONS & WORKSHOPS

Learning! It's Not a Spectator Sport, Danville Community College, Lecturer's Academy, August 17, 2006

Professional Development Opportunities in the VCCS, Danville Community College, Lecturer's Academy, August 17, 2006

Developing the Quality Enhancement Plan, SACS Summer Institute, Orlando, Florida, August 1, 2006

Combining the Accreditation Process and the Achieving the Dream Grant Initiative, Jobs for the Future and American Association of Community Colleges, Washington, DC, July 6, 2006

SDV 100 – College Success Skills in Achieving the Dream Learning Communities, Achieving the Dream Panel, VCCS New Horizons Conference, Roanoke, Virginia, April 8, 2006

Supporting Dislocated Workers and Adult Learners at Two-Year Colleges, American College Personnel Association (ACPA), Indianapolis, Indiana, March 20, 2006

Taking Collective Action to Improve the Success of Low-Income and Minority Students, co-presenter with Dr. Dennis Gregory, National Association of Student Personnel Administrators (NASPA), Washington, DC, March 13, 2006; Danville Community College faculty and staff, Danville, Virginia, March 28, 2006

Danville Community College's Accreditation Experience, Patrick Henry Community College, Martinsville, Virginia, January 3, 2006

Faculty as Leader, The State Board for Community Colleges, Danville, Virginia, November 16, 2005

- Using Program Evaluation to Improve Programs and Retention***, Administrative Support Technology Peer Group Conference, Roanoke, Virginia, October 8, 2004; VCCS New Horizons Conference, April 8, 2005
- Excellence in Teaching: Connecting with Students***, VCCS New Faculty Seminar, Hot Springs, Virginia, November 18, 2004
- Completing Your Ph.D. on Your Campus: The Old Dominion University Model***, co-presenter with Dr. Dennis Gregory, ODU, at the VCCS New Horizons Conference, April 5, 2004
- FiSH!—A New Look at Customer Service***, VCCS Business Peer Group Conference, Richmond, Virginia, October 11, 2002; VCCS New Faculty Seminar, Richmond, Virginia, November 20, 2003
- Multiple Intelligences: Helping Students Fulfill Their Potential***, VCCS New Faculty Seminar, Williamsburg, Virginia, January 25, 2001; VCCS New Faculty Seminar, Richmond, Virginia, November 8, 2001; The Virginia Master Teacher Seminar, July 10, 2002; VCCS New Faculty Seminar, Richmond, Virginia, November 14, 2002;
- It's a Tough Job. Why do you do it?***, Administrative Professionals Day, Danville, Virginia, April 24, 2002
- The Office Team and Business Etiquette***, Office of Dr. William Henderson, Danville, Virginia, November 15, 2001
- What is Teaching Excellence?***, VCCS New Faculty Seminar, Richmond, Virginia, November 8, 2001; VCCS New Horizons Seminar, Roanoke, Virginia, April 5, 2002
- DCC Student Culture***, Danville Community College Lecturers' Meeting, Danville, Virginia, August 15, 2000
- Design Yourself Successful***, American National Bank, Danville, Virginia, November 11, 1998, and April 20, 2000; George Washington High School students, Danville, Virginia, April 27, 1999
- Time Management***, Virginia Chamber of Commerce Executives, Danville, Virginia, April 6, 2000
- Exploring the Student's World View***, International Business Institute for Community College Faculty, Michigan State University, East Lansing, Michigan, May 26, 1999
- Stress Relief and Energy Engineering***, Danville Health Department Office Staff, Danville, Virginia, August 12, 1998; American Business Women's Association, Danville, Virginia, November 3, 1998; Women's Awareness Week, Danville, Virginia, March 22, 1999
- Written Communication in the Office***, Danville Public Schools office staff, Danville, Virginia, February 18, 1999.
- Medical Office Specialist Degree Program***, Danville Regional Office Managers Association, Danville, Virginia, May 11, 1999.
- Professional Image***, First State Bank, Danville, Virginia, April 8, 1998
- Action Teams***, Leadership Southside, Penhook, Virginia, September 20, 1994; Danville, Virginia, October 17, 1995

PROFESSIONAL AND COMMUNITY AFFILIATIONS

Member, Virginia Community College Association
 Member, National Association of Student Personnel Administrators (NASPA)
 Member, ACPA—College Student Educators International
 Member, The Virginia Network, American Council on Education
 Member, Career and Technical Education Advisory Committee, Danville Public Schools
 Board Member, Boys & Girls Club of Danville
 Board Member, Scale Up
 Member, Kiwanis Club of Danville (Past President and Board Member)
 Member, Leadership Southside Alumni Association
 Member, The Wednesday Club

HONORS

The Honor Society of Phi Kappa Phi, 2006
 Who's Who Among America's Teachers: 1996, 1998, and 2004
 Summa Cum Laude, Palm Beach Atlantic College, 1980

REFERENCES

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