

## RESEARCH ARTICLE

---

# Community College Transfers, Engagement, and Bachelor's Degree Completion

Samuel J. Grubbs

*South Carolina Commission on Higher Education*

Community colleges provide affordable options for students beginning higher education. However, there are concerns about the rate of community college students who do not complete bachelor's degrees. Previous research studies have found that student engagement on campus at four-year institutions can improve student retention. The purpose of this research was to determine if there is a mediating effect from community college transfer students engaging with on-campus educational activities on improving the likelihood that they will graduate with a bachelor's degree. This research utilizes data from the 2002 Educational Longitudinal Study and includes a structural equation model using maximum likelihood estimation. The results indicate starting at a community college has no effect on completing a bachelor's degree, though socio-economic characteristics and grades can negatively affect the likelihood of degree completion. Overall, when institutions assist community college transfer students with support services and opportunities, they can help strengthen student retention.

*Keywords:* transfer students, student activities, student services, mediated modal

*In the face of soaring college tuition, tight household budgets and the specter of graduating with large amounts of debt, more students are using the famously low-cost community college system as a steppingstone on the way to a four-year degree. (Gallagher, 2015, p. para 5)*

Community colleges are unique institutions and most of them are designed to be accessible to commuting students. About a third of the students who start at community colleges move on to study at four-year institutions. State political and educational leaders across the country are quite keen to encourage community college students to transfer to state colleges and universities (Gordon, 2015; Mast, 2016; Stancill, 2014). After former President Obama (2015) first proposed free community college, politicians (Fain, 2015), educators (American Association of Community College and Association of Community College Trustees, 2015), and even actors (Hanks, 2015) praised the potential opportunities that come from studying at community colleges. Though not all of the comments have been positive (Deruy, 2015; Morici, 2015), one of the consistent themes in these articles is that people can use community colleges as an affordable option to begin their academic career toward a bachelor's degree. It is, therefore, important to consider whether

community colleges provide an appropriate gateway for those students who desire to complete a bachelor's degree.

Bachelor's degree completion is no easy task for community college transfer students. They often have trouble transferring class credit, and many times have to take longer to complete degrees (Rouse, 1995). The relevant literature often highlights the stigma associated with being a community college transfer student at a four-year institution (Alexander, Ellis, & Mendoza-Denton, 2009; Bahr et al., 2012; Handel, 2011; Laanan, 2004; Mullin, 2012), which sometimes leads community college transfer students wanting to hide their academic background (Alexander et al., 2009; Bahr et al., 2012). Furthermore, some former community college students have a difficult time balancing their out-of-school responsibilities after transferring (Handel, 2011; Laanan & Starobin, 2004). Others researchers note that transfer students from community colleges can sometimes experience a disconnect and a feeling of inferiority at the institutions to which they have transferred (Townsend, 2008). After being in a community college environment, some transfer students at four-year institutions can perceive themselves as outsiders. (Alexander et al., 2009).

This research examines the effect of student engagement within a college or university setting as a mediating factor on community college transfer students' pursuit of their bachelor's degrees. The following section presents an overview of the major theories of student engagement and completion. The research question for this study is the following: What role does student engagement have on community college transfer student persistence toward completing a bachelor's degree?

## LITERATURE REVIEW

### Student Involvement and Engagement

There is a great deal of research highlighting the importance of educational activities on student grades and persistence (Astin, 1993; Braxton, Jones, Hirschy, & Hartley, 2008; Kuh & Hu, 2001; Pascarella & Terenzini, 2005). The effects of structural characteristics such as the quality, control, and type of the institution as well as the makeup of the student body have minimal and indirect effects on students' decisions to persist in higher education (Pascarella & Terenzini, 2005). In contrast, research has found that academic aptitude and social integration are both important factors that influence student persistence in higher education (Getzlaf, Sedlacek, Kearney, & Blackwell, 1984; Moore, Lovell, McGann, & Wyrick, 1998; Nakajima, Dembo, & Mossler, 2012; Pascarella & Terenzini, 2005). Moreover, research has found that during the latter years that a student studies in higher education, the positive effect of students' campus social integration on their academic success increases (Flynn, 2014; Terenzini & Wright, 1987).

Student engagement and student involvement are two distinct concepts. Involvement means to enfold in what is happening around, while engagement means to become a part of something (Ferlazzo, 2011). Both concepts require for both time and effort on the part of the students and others (Astin, 1999; Braxton et al., 2008; Kuh, Scuh, & Whitt, 1991). Kuh, Cruce, Shoup, Kinzie, and Gonyea (2008) found that once students have enrolled in higher education, student engagement on campus is very relevant to their persistence at college, whereas pre-college characteristics have a diminished impact upon that persistence. Further work has described how participation in co-curricular activities within residence halls and student organizations is

positively correlated with retention and academic performance (Pike & Kuh, 2005). Specifically, Kuh et al. (1991) highlighted the strong connection between out-of-class engaging student activities and students' personal and social development.

Involvement is a key construct of Astin's (1999) student development theory. The core concepts for student involvement include student inputs (or backgrounds), the student environment, and student outcomes (or their results at college). Involvement, in the view of Astin, requires an investment of energy and commitment by the student. He sees involvement as part of a "zero-sum game" (p. 523), because time and energy are finite resources. He argues that the facilitation of student growth and learning occurs when students are engaged in their higher education environment. According to Astin, academic performance in higher education correlates with a student's level of involvement on campus.

There have been some research studies that examine community college student involvement. According to Miller, Pope, and Steinmann (2004), there are two general groups of students who study at community college: one group seeking occupational education and one group aiming to transfer to four-year institutions. Overall, most students at community colleges are very unlikely to be involved with campus activities (Coley, 2000; Miller, Pope, & Steinmann, 2005; Schmid & Abell, 2003). Social support on campus, however, is a critical component of increasing a community college student's level of social integration on campus (Napoli & Wortman, 1998). Social integration within a campus is positively associated with community college student persistence (Pascarella, Smart, & Ethington, 1986).

Research suggests once students have transferred from a community college to a four-year institution, previous involvement at a community college has almost no impact on whether or not that student is academically strong or satisfied with their university environment (Berger & Malaney, 2003). Community college transfers experience many challenges as they move on to life at four-year institutions (Davies & Casey, 1999). Furthermore, many researchers have found that increased immersion in campus activities at the new institution has a positive impact on student persistence and institutional satisfaction (D'Amico, Dika, Elling, Algozzine, & Ginn, 2014; Davies & Casey, 1999; Townsend & Wilson, 2009). Though campus involvement is important, academic distress is a major issue for students who transfer from community colleges to colleges and universities (Bahr, Toth, Thirolf, & Massé, 2013; Berger & Malaney, 2003; D'Amico et al., 2014; Laanan, 2007).

## Bachelor's Degree Completion

Rouse (1995) found that a student's proximity to a community college increases the likelihood that the student will spend longer time pursuing an education but does not change the likelihood that the student will attain a bachelor's degree. This time extension on studying is often referred to as the community college *penalty* (Long & Kurlaender, 2009). Rouse suggests that community colleges divert some students who would have otherwise gone to a four-year institution. However, she found that there was no difference in the likelihood of their obtaining a bachelor's degree. Supporting Rouse's work, Leigh and Gill (2003) found that individuals attending a community college and seeking a bachelor's degree attain more years of education than those who do not desire a bachelor's degree (on average between 0.4 and 1 years).

Degree planning and internal motivation are important success factors for community college students who transfer to four-year institutions. Pascarella, Wolniak, and Pierson (2003)

found that students who intend to pursue a bachelor's degree are more likely to complete one while student who transfer to a traditional college without specific plans are more likely to drop out. Also, Shapiro et al. (2013) found that students who completed a certificate or an associate degree were more likely to graduate with a bachelor's degree after transferring than were students who transferred from a community college without earning a credential.

Some studies have suggested that starting at a community college negatively affects a student's likelihood of obtaining a bachelor's degree, although the impact differs according to the area of study (Alfonso, 2006; Doyle, 2009; Long & Kurlaender, 2009; Monaghan & Attewell, 2015; Reynolds, 2012). In discussing the negative effect for students who start at community colleges, Alfonso (2006) has indicated that, in the present system, community college enrollment does not provide a straightforward education path, thereby decreasing the likelihood of a person obtaining a bachelor's degree. Monaghan and Attewell (2015) found that former community college students accumulated fewer class credits after transferring to four-year institutions than did students who only attended four-year institutions because they are more likely to need to keep up employment. Melguizo, Kienzl, and Alfonso (2011) also found that the chances of graduating from a four-year institution were not as good for those who start at community colleges and are working while studying. Additionally, Long and Kurlaender (2009) found the negative effect on graduating with a bachelor's degree for those who start at a community college is greater for women and African American students. Doyle (2009) added that policy makers who seek to shift enrollments to community colleges should be aware that it may lead to lower bachelor's degree attainment when they eventually transfer to traditional colleges or universities.

Student quality affects student persistence toward gaining a bachelor's degree. Sandy, Gonzalez, and Hilmer (2006) found that lower student quality explained the probability of lower bachelor's degree graduation for students who transferred from community colleges. The researchers posit that this lower probability has become more marked in the last few decades. Though other studies point to lack of academic preparedness as a reason community college students fail (Cohen, Brawer, & Kisker, 2014; Roksa & Calcagno, 2008), Bound, Lovenheim, and Turner (2010) contradicted those conclusions and indicated that degree completion from all types of colleges has more to do with institutional resources than with student preparedness. Alba and Lavin (1981), when comparing students with similar academic records in their first two years at both types of higher education institutions, noted that students from community colleges were more likely to struggle, leading the authors to question whether the two types of institutions provided the same level of academic rigor. Bahr (2008) has proposed that improved community college academic advising (especially for students who are struggling academically) increases their chances of reaching their academic goals. In more recent work that has sought to disentangle the net impacts of starting at a community college, Mountjoy (2018) found that community colleges provide a benefit for those who would have not already gone to college, but students who were diverted from four-year institutions to community colleges are 18% less likely to complete a bachelor's degree. Other issues such as student backgrounds, involvement on campus, goals, and internal motivation are personal factors that can be significant predictors of community college student retention at four-year institutions (Feldman, 1993; Townsend & Wilson, 2009; Wang, 2009; Young & Litzler, 2013).

There is research that suggests that higher education institutional resources have an important effect on student achievement. Pascarella et al. (2003) and D'Amico et al. (2014) posit that the differences found between the academic environments of community colleges and the academic environments at traditional colleges and universities influence the desire of students to

pursue bachelor's degrees. Calcagno, Bailey, Jenkins, Kienzl, and Leinbach (2008) found an inverse relationship between community college size and the likelihood of students transferring or graduating. This finding contrasts with the results from a similar study regarding the degree completion of students at four-year institutions (Titus, 2004). Calcagno et al. (2008) also found that student characteristics played an important part in degree completion. Anderson, Alfonso, and Sun (2006) found that even with increases in articulation agreements between community colleges and public four-year institutions, there have been no significant increases in the percentages of students who start at a community college and transfer to a four-year institution to complete a bachelor's degree. At the time, Townsend (2001) suggested that the emphasis on community college education could lead to a *middle class takeover* of community colleges, a situation in which underprivileged students would not be an institutional priority. This takeover does not seem to have happened. In fact, data suggest that a larger percentage of people from lower income families are attending community colleges, while the percentages of middle income students at community colleges have remained consistent (Goldhaber & Peri, 2007).

Overall, the research studies find that community college transfer students are less likely to be involved on four-year campuses. Furthermore, research on the premise of community colleges being gateway institutions for bachelor's degree studies is inconclusive. There are conflicting studies about the persistence of community college transfer students. I propose to synthesize the literature on student involvement and the literature on the persistence of community college transfer students. This will make it possible to consider the effect of student engagement on community college transfer students' ability to complete bachelor's degrees. Ideally, it would be useful to see if student engagement may help eliminate any potential negative effect from starting at a community college. With controls in place for personal and academic characteristics, this research seeks to reconcile past inconsistencies using broader and more recent data. The findings of this study can help researchers and administrators better understand how to support the educational objectives of community college transfers who move on to pursue a bachelor's degree. The hypothesis for the analysis in this research study is:

For students who begin their studies at community colleges and transfer to four-year institutions, student engagement on campus mediates the effects of community college attendance on the likelihood of their graduating with a bachelor's degree.

## METHODS

The data for this analysis came from the Educational Longitudinal Study (ELS). The ELS is a national representative study by the U.S. Department of Education's Institute of Education Science (IES) of about 16,190 10<sup>th</sup> graders in public and private high schools in 2002 (National Center for Education Statistics, 2015). The research team followed up with the students during their senior year in 12<sup>th</sup> grade and twice after high school in 2006 and 2012. For this analysis, I investigated where respondents began their higher education, how involved they were with high-impact educational activities while studying at colleges and universities, and whether or not they graduated with a bachelor's degree. I used maximum likelihood estimation within structural equation modeling (mediated model format) to test how involvement can affect community college transfer student's likelihood of graduating with a bachelor's degree.

According to Adelman (1999), attending a four-year institution is the only reliable indicator of a student's desire to complete a bachelor's degree. Based on that perspective, I only included respondents in this study who had spent at least some time studying at a four-year higher education institution. That eliminated about 5/8 of the almost 4,000 ELS respondents who started at a community college and did not attend a four-year institution. By focusing on people who were likely bachelor's degree aspirants, I eliminated students who may have only wanted associate degrees or certificates after high school. Although limiting the analysis to only the respondents who attended a four-year institution reduced the sample size from 10,790 to 8,260, the results can be more reflective of students who sought to pursue a bachelor's degree.

## Variables

A list of the variables and the coding structure that I used for an expanded model analysis is available in Table 1. The dependent variable in the analysis was an indicator variable for whether or not the respondent graduated with a bachelor's degree with 8 years after high school. I used an indicator variable for whether or not the respondent started at a community college as the primary independent variable. The control variables include demographics, grades, family background, personal wages two years after high school, and last post-secondary institution's control and selectivity.

## Measuring Involvement

“[T]he extent to which students become involved in the academic and social aspects of college life reflects specific choices that they make about how to allocate limited resources” (Bahr et al., 2013, p. 482). Astin (1999) believed that involvement was a unique concept different from the motivation to persist in post-secondary education. In his view, involvement in higher education was both a qualitative and a quantitative concept. Previous work has examined the hours students spent studying or participating in extracurricular activities (Berger & Malaney, 2003; Laanan, 2007). Other work has examined involvement from the way the way students allocate their time (Davies & Casey, 1999). For the mediated variable in the analysis, I chose to measure the number of what Kuh (2008) has called “high-impact educational activities” with which each student is involved during his or her time in post-secondary education. The list of high-impact activities includes:

- Internship/ co-op/ field experience
- Research project with faculty
- Study abroad
- Community-based project
- Culminating senior experience
- Mentoring

TABLE 1  
Variable Coding Sources and Scheme

Variables	Coding Scheme
<i>Dependent variable</i>	
Bachelor's degree attained	1 = the respondent achieved a bachelor's degree by 8 years after high school 0 = the respondent did not achieve a bachelor's degree by 8 years after high school
<i>Independent variable</i>	
Started at a community college	1 = the respondent started higher education at a community college 0 = the respondent started higher education at a 4-year institution
<i>Mediating variable</i>	
High-impact activities	The respondent's number of high-impact educational activities that the he/she participated in while studying higher education
<i>Control variables</i>	
Gender	1 = man 0 = woman
Race	1 = Black or African American 1 = Asian, Pacific Islander, or Native American 1 = Hispanic, race specified or not 1 = Mixed race (The reference group is White.)
Family socio-economic status (SES)	values between -2 and 2, composite value based on parent's educational level, occupational status, and income
Living at home in 2006	1 = respondent was living at home 2 years after high school 0 = respondent was not living at home 2 years after high school
Natural log of 2005 wages	The natural log of the respondent's wages in 2005, the second year out of high school
Received higher ed. financial aid	1 = respondent received financial aid from first post-secondary inst. 0 = respondent did not receive financial aid from first post-secondary inst.
Institutional selectivity	1 = last institution was highly selective by 2005 Carnegie classification 1 = last institution was moderately selective by 2005 Carnegie classification (The reference group is nonselective institutions)
Public last institution	1 = respondent's last institution attended was public 0 = respondent's last institution attended was private
Higher education GPA	Respondent's cumulative higher education Grade Point Average on a 4.0 scale
Number of institutions attended	The number of higher education institutions that a student attended

Through the National Study of Student Engagement (a study of four-year institutions), Kuh has identified these activities as critical for deeper student learning and personal development. According to Kuh (2008), student participation in these activities leads to higher rates of student retention and engagement on campus (9). Most of these activities are associated with the later years of higher education, although community college students experience many of them while studying. Kuh's (2008) results identify that most of these activities are more commonly a part of the environment at more selective, private colleges and universities.

In this analysis, the value for this variable could be any number between '0' and '6' depending on the number of different activities that the student undertook. The study only asked students if they did each of the activities. The survey in this analysis does not address repeated similar activities such as multiple internships. A person with a value of 6 took part in all six of the activities during his or her time in higher education.

Many students (including all of the community college starters in this study) attended multiple institutions prior to graduation. The questions in the study only ask respondents if they participated in each of these activities when they were studying. Therefore, there is no way to determine the post-secondary institution where the students did the high-impact activities or how involved they were with the activity. Though this is a limitation, it does not affect this analysis on the relationship between engagement and graduation.

## Analysis

From the literature review, there is a negative correlation between being a community college transfer student and graduating with a bachelor's degree. Additionally, I cite theory and studies that establish a correlation between engagement and persistence in pursuing a degree. For this analysis, I used a mediated structural equation model with engagement as the mediated variable to connect the two concepts. The analysis uses maximum likelihood estimation, which has been identified as a consistent and asymptotically efficient point estimator (Greene, 2014). I present an overview of the mediated model in Figure 1.

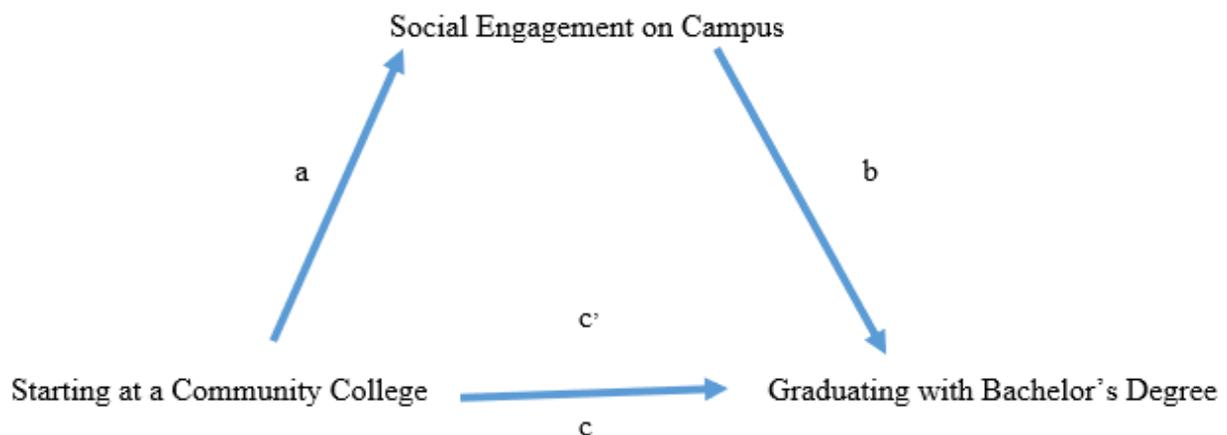


Figure 1. Mediated model overview.

According to Baron and Kenny (1986), there are four distinct steps establishing a mediated relationship among variables. First, path *c* (in Figure 1) is the total effect, noted as the impact of starting at a community college on the likelihood of bachelor's degree completion. The second step involves estimating the effect of being a community college transfer student on the likelihood of the mediating variable occurring (participation with high-impact educational activities, noted as path *a*). For path *b* and *c'*, I rerun the original estimation of starting at a community college on the likelihood of graduation (*c'*), and I include student involvement as an additional variable in the model (*b*).

For interpretation, I standardize all of the coefficients so that the means and standard deviations of the values are consistent. I do this by multiplying the coefficients by the ratios of the standard deviation of the coefficient over the standard deviation of the predicted outcome.

$$B'_k = B \times \frac{S_{x_k}}{S_{y^*}}$$

The direct effect of main variable is the value of the standardized coefficients is the value (starting at a community college) in path *c'*. To find the indirect effect (or mediated effect), I multiply the standardized coefficient for path *a* by the standardized coefficient in path *b*. Ultimately, I can add the standardized coefficient for *c'* to the product of the standardized coefficients of *a* and *b* to obtain the standardized coefficient for the value in *c*.

$$c = c' + a \times b$$

According to Kenny (2016), this type of analysis is appropriate as long as the coefficients in *a*, *b*, and *c* are significant, and the coefficient in *c'* is not significant. I present the results in table form.

## RESULTS

Tables 2 and 3 are the summary statistics on student involvement. Table 2 includes the frequency of each type of activity by participants' final degree and the initial type of institution where the participants enrolled. The results indicate that most common educational activity was internships. Over half of the respondents completed at least one internship while studying. Specifically, about 70% of the respondents with a graduate degree had an internship. The second most common activity was a senior experience or project. About half of the respondents who completed at least a bachelor's degree undertook these projects. The third most common experience was being the recipient of mentoring. Also, about one third of the graduate degree holders had an undergraduate research experience with a faculty member. The least common activity overall was studying abroad. Though almost one in five of the bachelor's degree and graduate degree holders did study abroad, less than 5% of the rest of the respondents undertook such an activity. Students who started at four-year institutions were more likely than students who started at community colleges to do each of the activities.

Table 2 also includes the average number of different activities that members within each group of respondents experienced. Overall, certificate and associate degree holders averaged about one activity, while bachelor's degree and graduate degree holders averaged about two per person. Students who started at four-year institutions were twice as likely as students who started at community colleges to do high-impact educational activities. A visual representation of the number of students who did 0-6 activities separated by each student's first type of institution shows that there were more community college students than four-year students who did not have any

high-impact activities (Figure 2). There were almost no community college starters who had more than three activities. Respondents who initially enrolled in a four-year institution undertook an average number of activities that was twice that of respondents who went to community colleges (those values are lower because they include degree non-completers).

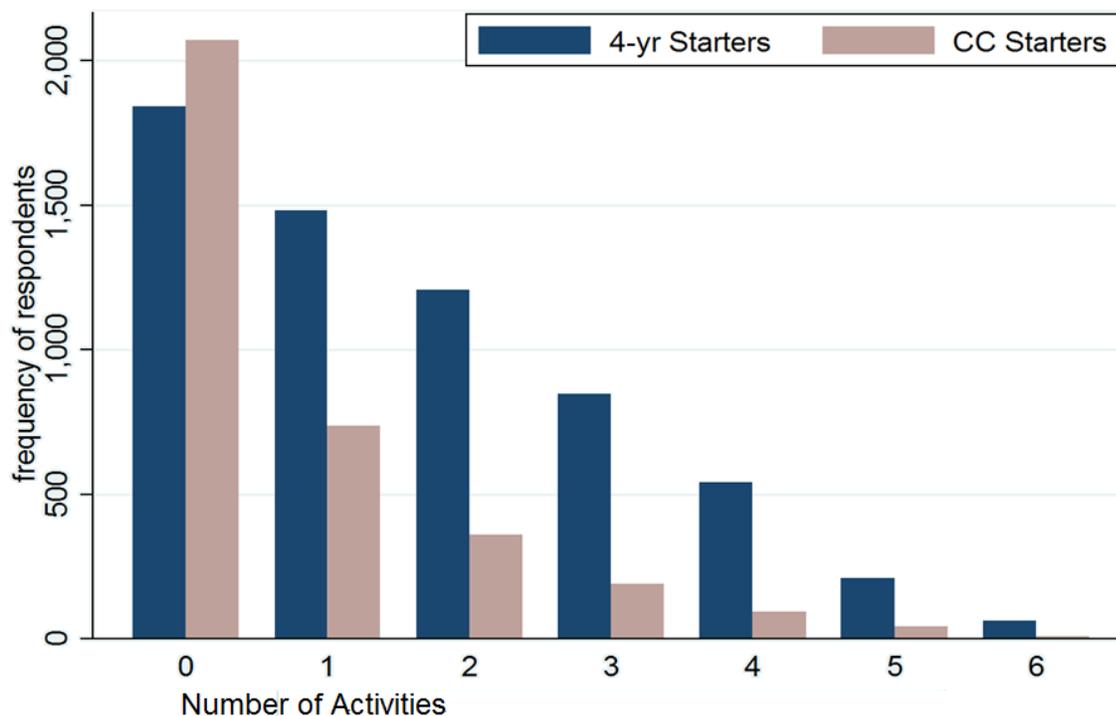


Figure 2. Comparison of four-year and community college starters by number of high-impact educational activities

Table 3 includes the overall degree completion rates for all students in the ELS who attended either a two-year or four-year institution. About one third of the respondents did not receive a post-secondary education credential within 8 years after high school (by 2012) and about another third received a bachelor's degree. The last two columns of the table (before the total column) are a breakdown of community college starters by whether or not they had attended a four-year institution during their time in post-secondary education. Slightly more than half of all community college starters in the study had not completed any degree program. This result is heavily influenced by community college students who did not go to a four-year institution (64% non-completers). The degree completion percentages of respondents who were community college starters that had attended a four-year institution were very similar to the degree completion percentages of four-year starters. Only around a quarter of the students from those two groups did not finish a degree. The only major difference between the four-year institution starters and the community college starters who attended four-year institutions was that about 10% more of the four-year starters had attained a graduate degree, while about 10% more of the community college starters completed an associate degree.

TABLE 2  
Involvement Rates According to Activity

	Internship/ co-op/ field experience	Research project with faculty	Study abroad	Community- based project	Culminating senior experience	Mentoring	Mean number of activities
Final degree earned							
No Degree	18%	7%	4%	9%	7%	8%	0.54
Certificate	49%	10%	5%	14%	13%	17%	1.07
Associate's	44%	10%	4%	16%	16%	13%	1.02
Bachelor's	60%	17%	17%	25%	45%	21%	1.84
Graduate	70%	29%	22%	35%	50%	30%	2.36
Where r started							
Started at 4-yr	52%	17%	15%	23%	36%	20%	1.62
Started at CC	31%	8%	4%	12%	13%	10%	0.77
Total	44%	13%	11%	19%	27%	16%	1.29

*Note.* n ~ 10,400

TABLE 3  
Percent Degree Completers by Respondent's Initial Post-Secondary Institution

	4-year institution starters	All community college (CC) starters	CC starters who did not go to 4-yr inst.*	CC starters who did go to 4-yr inst.*	Total
Some college	26.06	50.82	63.86	28.12	35.24
Certificate	4.88	15.37	20.01	6.65	8.77
Associate's	5.53	15.82	15.94	15.93	9.35
Bachelor's	47.57	16.07	0.20	44.11	35.89
Graduate	15.97	1.92	0.00	5.19	10.76
n	6,820	4,020	2,530	1,440	10,840

*Note.* \*sub-categories of community college starters based on whether or not the respondent attended a college or university

In order to test the effect of participation with high-impact educational activities on mediating the impact that starting at a community college has on bachelor's completion, the analysis includes a structural equation model with control variables in the mediated and full models (Table 4). According to the results, the effect of starting at community college on bachelor's degree completion is not statistically significant in the direct effect model (first column of Table 4) nor is it in the mediated effect model (third column of Table 4). In both cases, the value for starting at a community college on the likelihood of graduating with a bachelor's degree is almost zero (-0.003 and 0.002 respectively). There is still a statistically significant negative effect for starting at a community college on participation with high-impact activities (2<sup>nd</sup> column in Table 4, -0.04,  $p < 0.01$ ), and there is a statistically significant positive coefficient for participation with high-impact activities on the likelihood of graduating (0.14,  $p < 0.01$ ).

The additional controls are variables that highlight differences associated with students at the two different institutions noted in the previous literature. Overall, higher education GPA had the largest influence on participation with the participation with high-impact educational activities (0.30,  $p < 0.01$ ) and on the likelihood of bachelor's degree completion (0.35,  $p < 0.01$ ). Family socio-economic status and higher education institutional selectivity are two variables that are statistically significant and positively associated with both participation with high-impact activities and bachelor's degree completion. Receiving financial aid is statistically significant and positively associated with educational activity participation, but it is not significantly related with degree completion. In contrast, living at home in 2006 is statistically significant and negatively associated with activity participation (-0.09,  $p < 0.01$ ) and bachelor's degree completion (-0.06,  $p < 0.01$ ). Additionally, the natural log of a person's wages in 2005 and the number of institutions that a person had attended are negatively associated with graduation, but these variables are not statistically significant. Also, going to a public institution was statistically significant and negatively associated with high-impact activity participation (-0.06,  $p < 0.01$ ), but the variable was not significantly related to graduation.

TABLE 4  
Mediated Model with Control Variables

	Path C, total effect of CC on bachelor's degree		Path A, effect of CC on activities		Paths B and C', effect of CC and activities on bachelor's degree	
	Graduate with a bachelor's degree	Robust Standard Errors	# of high-impact educational activities	Robust Standard Errors	Graduate with a bachelor's degree	Robust Standard Errors
Male	0.02	0.01	-0.06**	0.01	0.03**	0.01
Black	0.01	0.01	0.03*	0.01	0.01	0.01
Asian/Pacific/Native American	0.03**	0.01	0.00	0.01	0.03**	0.01
Mixed race	0.01	0.01	0.02	0.01	0.01	0.01
Hispanic	0.02	0.01	0.01	0.01	0.02	0.01
Family SES	0.06**	0.01	0.07**	0.01	0.05**	0.01
Living at home in 2006	-0.07**	0.01	-0.09**	0.01	-0.06**	0.01
Natural log of wages in 2005	-0.05**	0.01	-0.02	0.01	-0.06**	0.01
Received financial aid	0.00	0.01	0.05**	0.01	-0.01	0.01
Highly selective last inst.	0.22**	0.02	0.12**	0.02	0.21**	0.01
Moderately sel. last inst.	0.22**	0.02	0.05**	0.01	0.21**	0.01
Public last institution	-0.01	0.01	-0.06**	0.01	0.00	0.01
Higher education GPA	0.40**	0.01	0.30**	0.01	0.35**	0.01
Number of institutions attended	-0.10**	0.01	0.02	0.01	-0.10**	0.01
Started at community college	0.00	0.01	-0.04**	0.01	0.00	0.01
# of high-impact educational activities					0.14**	0.01
Constant	0.1	0.11	-0.06	0.13	0.14	0.12

Note. \*  $p < 0.05$ , \*\*  $p < 0.01$

## DISCUSSION AND IMPLICATIONS

Community colleges have been heavily promoted as low-cost gateways for students who want to pursue their higher education ambitions. There is a great deal of interest from politicians and education leaders in understanding any potential effects that starting at a community college may have on a person's chances of completing a bachelor's degree. This present research has taken the approach of investigating the issue by incorporating student engagement on campus as a mediating factor in transfer students' pursuit of a bachelor's degree. There is extensive research and theory that has established the relationship between student persistence and student engagement and involvement (Astin, 1993; Kuh et al., 2008; Kuh et al., 1991; Moore et al., 1998). This study applies those theories and research to help us understand what role student engagement has on community college transfers persistence.

Improving student persistence has become a responsibility of colleges and universities. Community college transfer students can have a harder time completing degrees because of many factors. The results of this study show that even though community college starters are less likely to participate in high-impact educational activities, there is no effect from starting at a community college on bachelor's degree completion when you control for other related variables such as higher education GPA, family SES, living at home, and wages. The results support Rouse's (1995) earlier findings that starting at a community college does not in itself affect the likelihood that a student can achieve a bachelor's degree. Consistent with other studies, the research finds that there are some major challenges with the academic, economic, and social conditions for many of the students who begin their study at community colleges (Beach, 2011; Scherer & Anson, 2014).

The findings in this study suggest that the relationship between community college starting and bachelor's degree completion is not mediated by high-impact educational activity participation. Rather, the relationship among the three variables is linear. There is a statistically significant negative relationship between starting at a community college and student engagement with high-impact educational activities, which is understandable based on the arrangement of the institution. Furthermore, there is a statistically significant positive relationship between participation with high-impact educational activities and the likelihood of completing a bachelor's degree. It is therefore important for faculty and administrators to encourage community college transfers, especially those from disadvantaged backgrounds, to get involved with engaging student activities at their new colleges and universities. Student engagement on campus increases student learning and personal development (Kuh, 2008; Kuh et al., 1991; Pike & Kuh, 2005).

Chickering and Reisser (1993) suggest that interpersonal relationships that form during a student's time studying in post-secondary education are key for a young person's identity development. Once students are involved and feel that they are a part of their college or university, the mitigation of social barriers that separate people can occur. Organizational studies literature highlights the role of engagement as a necessary component of improving member commitment (Bakker & Schaufeli, 2008). Effectively, the associated negative stigmas that may limit some community college transfer student involvement at colleges and universities campuses (Alexander et al., 2009) can be overcome by developing opportunities to support transfer students and help them be a part of their new college or university.

Though student engagement with high-impact educational activities is a key factor that can help improve the academic performance of students, especially those from disadvantaged backgrounds, "Student engagement is not a silver bullet" (Kuh, 2008, p. 22). This study has found that starting at a community college does not affect bachelor's degree persistence when you control

for background and academic characteristics. Colleges and universities need to invest resources to help community college transfer students adjust to the educational environment at four-year institutions and become more engaged on campus to overcome the social and financial disadvantages that they have. Many large universities have transfer student offices that organize programs like student groups, mentoring programs, and academic honor societies. More programs and services are possible like offering more classes at non-traditional times to accommodate people who work during the day or providing on-site and supplemented child care for students with young children. Some students fall short in completing their bachelor's degrees because they need universities that can provide flexible educational options as community colleges do. This is one reason why for-profit universities have been increasingly attractive to people from disadvantaged backgrounds who want to study for a bachelor's degree.

Overall, getting community college transfer students the support that they need and encouraging them to become connected with their bachelor's-granting institution can help these students to become more successful. Academic advising through keen relationship building is crucial for student persistence in higher education (Drake, 2011). As more community college transfer students succeed in completing bachelor's degrees, institutions will strengthen their retention and degree completion statistics. As colleges and universities contribute resources to developing successful pathways for community college transfers, more community college students will want to complete bachelor's degrees. For example, the percentage of community college transfer students admitted grew by 8% at University of California campuses as part of the system's plan to increase student access (Gecker, 2018). In another case, Arizona State University has transfer agreements from community colleges in four states. As of 2018, the institution has more than 5,000 transfer students at their institution including more than 3000 students from the region's community college. Four-year institutions can also seek out partnerships with community colleges to encourage bachelor's degree completion opportunities. Catawba College (a four-year institution) has a strong articulation agreement with Central Piedmont Community College and offers classes online, in evenings, and on weekends on the community college campus for students who want to complete a bachelor's degree.

Hopefully, future research will integrate administrative and student affairs data in developing a broader picture of how to effectively help community college students to succeed in higher education. This research has reinforced the argument that there are challenges to those who start out at community colleges (Doyle, 2009; Jenkins & Fink, 2016; Long & Kurlaender, 2009). Community college transfers do not all come from the same background or have the same issues. Therefore, more work and future studies are needed to develop targeted programs and services to help community college transfers from all backgrounds who want to pursue bachelor's degrees. When colleges and universities spend time to build the connections with community college transfers, both students and higher education institutions can succeed.

## REFERENCES

- Adelman, C. (1999). *Answers in the toolbox: Academic intensity, attendance patterns, and bachelor's degree attainment*. Washington, DC: National Institute of Postsecondary Education, Libraries, and Lifelong Learning.
- Alba, R. D., & Lavin, D. E. (1981). Community Colleges and Tracking in Higher Education. *Sociology of Education*, 54(4), 223-237. doi:10.2307/2112565
- Alexander, S., Ellis, D., & Mendoza-Denton, R. (2009). *Transfer student experiences and success at Berkeley*. Berkeley, CA: Center for Studies in Higher Education, University of California, Berkeley (CSHE.3.09).

- Alfonso, M. (2006). The impact of community college attendance on baccalaureate attainment. *Research in Higher Education, 47*(8), 873-903. doi:10.1007/s11162-006-9019-2
- American Association of Community College and Association of Community College Trustees. (2015). Education leaders joining national campaign for tuition free community college. Retrieved from [http://www.aacc.nche.edu/newsevents/pressreleases/Pages/09092015\\_1.aspx](http://www.aacc.nche.edu/newsevents/pressreleases/Pages/09092015_1.aspx)
- Anderson, G. M., Alfonso, M., & Sun, J. (2006). Rethinking cooling out at public community colleges: An examination of fiscal and demographic trends in higher education and the rise of statewide articulation agreements. *Teachers College Record, 108*(3), 422-451.
- Astin, A. W. (1993). *What matters in college? Four critical years revisited*. San Francisco: Jossey-Bass.
- Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journal of College Student Development, 40*(5), 518-529.
- Bahr, P. R. (2008). Cooling Out in the community college: What is the effect of academic advising on Students' Chances of Success? *Research in Higher Education, 49*(8), 704-732. doi:10.1007/s11162-008-9100-0
- Bahr, P. R., Massé, J. C., Christensen, R., Griffiths, B., Toth, C., Thirolf, K., . . . Lee, M. (2012). Transition process of transfer students in the School of Education at the University of Michigan. Ann Arbor, MI: Center for the Study of Higher and Postsecondary Education, University of Michigan. Retrieved from <https://umich.app.box.com/v/Bahr-2012-TransferStudentsMI>
- Bahr, P. R., Toth, C., Thirolf, K., & Massé, J. C. (2013). A review and critique of the literature on community college students' transition processes and outcomes in four-year institutions. In M. B. Paulsen (Ed.), *Higher education: Handbook of theory and research* (Vol. 28, pp. 459-511). Dordrecht, NL: Springer Netherlands.
- Bakker, A. B., & Schaufeli, W. B. (2008). Positive organizational behavior: engaged employees in flourishing organizations. *Journal of Organizational Behavior, 29*(2), 147-154. doi:10.1002/job.515
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.
- Beach, J. M. (2011). *Gateway to opportunity? A history of the community college in the United States*. Sterling, Va.: Stylus Pub.
- Berger, J. B., & Malaney, G. D. (2003). Assessing the transition of transfer students from community colleges to a university. *NASPA Journal 40*(4), 1-23.
- Bound, J., Lovenheim, M. F., & Turner, S. (2010). Why have college completion rates declined? An analysis of changing student preparation and collegiate resources. *American Economic Journal: Applied Economics, 2*(3), 129-157. doi:10.2307/25760222
- Braxton, J. M., Jones, W. A., Hirschy, A. S., & Hartley, H. V. (2008). The role of active learning in college student persistence. *New Directions for Teaching and Learning, 2008*(115), 71-83. doi:10.1002/tl.326
- Calcagno, J. C., Bailey, T., Jenkins, D., Kienzl, G., & Leinbach, T. (2008). Community college student success: What institutional characteristics make a difference? *Economics of Education Review, 27*(6), 632-645. doi:<http://dx.doi.org/10.1016/j.econedurev.2007.07.003>
- Chickering, A. W., & Reisser, L. (1993). *Education and identity*. San Francisco: Jossey-Bass Publishers.
- Cohen, A. M., Brawer, F. B., & Kisker, C. B. (2014). *The American community college* (Sixth edition. ed.). San Francisco: Jossey-Bass.
- Coley, R. J. (2000). The American Community College Turns 100: A Look at Its Students, Programs, and Prospects. Policy Information Report.
- D'Amico, M., Dika, S., Elling, T., Algozzine, B., & Ginn, D. (2014). Early integration and other outcomes for community college transfer students. *Research in Higher Education, 55*(4), 370-399. doi:10.1007/s11162-013-9316-5
- Davies, T. G., & Casey, K. (1999). Transfer student experiences: Comparing their academic and social lives at the community college and university. *College Student Journal, 33*(1), 60.
- Deruy, E. (2015). The debate over free community college. Retrieved from <http://www.theatlantic.com/education/archive/2015/07/free-community-college-mixed-reviews/399701/>
- Doyle, W. R. (2009). The effect of community college enrollment on bachelor's degree completion. *Economics of Education Review, 28*(2), 199-206. doi:<http://dx.doi.org/10.1016/j.econedurev.2008.01.006>
- Drake, J. K. (2011). The role of academic advising in student retention and persistence. *About Campus, 16*(3), 8-12. doi:10.1002/abc.20062
- Fain, P. (2015). Free college catches on. *Inside Higher Ed*. Retrieved from <https://www.insidehighered.com/news/2015/07/09/oregon-passes-free-community-college-bill-congressional-democrats-introduce-federal>

- Feldman, M. (1993). Factors associated with one-year retention in a community college. *Research in Higher Education, 34*(4), 503-512. doi:10.1007/BF00991857
- Ferlazzo, L. (2011). Involvement or Engagement? *Schools, Families, Communities, 68*(8), 10-14.
- Flynn, D. (2014). Baccalaureate attainment of college students at 4-year institutions as a function of student engagement behaviors: Social and academic student engagement behaviors matter. *Research in Higher Education, 55*, 467-493.
- Gallagher, N. K. (2015). More students using community college to save money on a four-year college education. Retrieved from <http://www.pressherald.com/2015/04/12/low-cost-great-potential-add-to-maine-community-colleges-appeal/>
- Gecker, J. (2018). University of California schools admit record number of transfer students. *The Press Democrat*. Retrieved from <https://www.pressdemocrat.com/news/8526543-181/university-of-california-schools-admit?sba=AAS>
- Getzlaf, S. B., Sedlacek, G. M., Kearney, K. A., & Blackwell, J. M. (1984). Two types of voluntary undergraduate attrition: Application of Tinto's model. *Research in Higher Education, 20*(3), 257-268. doi:10.1007/bf00983501
- Goldhaber, D., & Peri, G. K. (2007). Community colleges. In S. Dickert-Conlin & R. H. Rubenstein (Eds.), *Economic inequality and higher education: Access, persistence, and success*. New York: Russell Sage Foundation.
- Gordon, L. (2015). Making the community college-to-UC transfer a little easier. Retrieved from <http://www.latimes.com/nation/la-me-ln-uc-transfer-20150707-story.html>
- Greene, W. H. (2014). *Econometric analysis*. Upper Saddle River, NJ: Pearson-Prentice Hall.
- Handel, S. J. (2011). Improving student transfer from community colleges to four-year institutions - The perspective of leaders from baccalaureate-granting institutions. Retrieved from <https://secure-media.collegeboard.org/digitalServices/public/pdf/rd/11b3193transpartweb110712.pdf>
- Hanks, T. (2015). I owe it all to community college: Tom Hanks on his two years at Chabot College. Retrieved from [http://www.nytimes.com/2015/01/14/opinion/tom-hanks-on-his-two-years-at-chabot-college.html?\\_r=0](http://www.nytimes.com/2015/01/14/opinion/tom-hanks-on-his-two-years-at-chabot-college.html?_r=0)
- Jenkins, D., & Fink, J. (2016). Tracking Transfer: New Measures of Institutional and State Effectiveness in Helping Community College Students Attain Bachelor's Degrees. Retrieved from <https://ccrc.tc.columbia.edu/publications/tracking-transfer-institutional-state-effectiveness.html>
- Kenny, D. A. (2016). Mediation. Retrieved from <http://davidakenny.net/cm/mediate.htm>
- Kuh, G. D. (2008). *High-impact educational practices: What they are, who has access to them, and why they matter*. Washington, DC: Association of American Colleges and Universities.
- Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education, 79*(5), 540-563.
- Kuh, G. D., & Hu, S. (2001). The effects of student-faculty interaction in the 1990s. *The Review of Higher Education, 24*, 309-332.
- Kuh, G. D., Scuh, J. H., & Whitt, E. J. (1991). *Involving colleges: Successful approaches to fostering student learning and development outside the classroom*. San Francisco: Jossey-Bass Publishers.
- Laanan, F. S. (2004). Studying transfer students part I: Instrument design and implications. *Community College Journal of Research & Practice, 28*(4), 331-351. doi:10.1080/10668920490424050
- Laanan, F. S. (2007). Studying Transfer Students: Part II: Dimensions of Transfer Students' Adjustment. *Community College Journal of Research and Practice, 31*(1), 37-59. doi:10.1080/10668920600859947
- Laanan, F. S., & Starobin, S. S. (2004). Urban community college transfers to a university. *Academic Exchange Quarterly, 8*(2), 139-147.
- Leigh, D. E., & Gill, A. M. (2003). Do community colleges really divert students from earning bachelor's degrees? *Economics of Education Review, 22*(1), 23-30. doi:[http://dx.doi.org/10.1016/S0272-7757\(01\)00057-7](http://dx.doi.org/10.1016/S0272-7757(01)00057-7)
- Long, B. T., & Kurlaender, M. (2009). Do community colleges provide a viable pathway to a baccalaureate degree? *Educational Evaluation and Policy Analysis, 31*(1), 30-53. doi:10.3102/0162373708327756
- Mackinnon, D. P., & Dwyer, J. H. (1993). Estimating mediated effects in prevention studies. *Evaluation Review, 17*(2), 144-158. doi:10.1177/0193841x9301700202
- Mast, T. (2016). UW, community colleges aim for easy transfers. Retrieved from [http://www.laramieboomerang.com/news/local\\_news/uw-community-colleges-aim-for-easy-transfers/article\\_2009fb6e-c961-11e5-baf1-b78c75af88d9.html](http://www.laramieboomerang.com/news/local_news/uw-community-colleges-aim-for-easy-transfers/article_2009fb6e-c961-11e5-baf1-b78c75af88d9.html)
- Melguizo, T., Kienzl, G. S., & Alfonso, M. (2011). Comparing the educational attainment of community college transfer students and four-year college rising juniors using propensity score matching methods. *Journal of Higher Education, 82*(3), 265-291.

- Miller, M. T., Pope, M. L., & Steinmann, T. D. (2004). Dealing with the challenges and stressors faced by community college students: The old college try. *Community College Journal of Research and Practice*, 29(1), 63-74. doi:10.1080/10668920590524067
- Miller, M. T., Pope, M. L., & Steinmann, T. D. (2005). A profile of contemporary community college student involvement, technology use, and reliance on selected college life skills *College Student Journal*, 39(3), 596-603.
- Monaghan, D. B., & Attewell, P. (2015). The community college route to the bachelor's degree. *Educational Evaluation and Policy Analysis*, 37(1), 70-91. doi:10.3102/0162373714521865
- Moore, J., Lovell, C. D., McGann, T., & Wyrick, J. (1998). Why involvement matters: A review of research on student involvement in the collegiate setting. *College Student Affairs Journal*, 17(2), 4-17.
- Morici, P. (2015). Obama's bogus community college giveaway. Retrieved from <http://www.newsmax.com/Finance/Obama-Community-College-Education-Tuition/2015/01/15/id/618718/>
- Mountjoy, J. (2018). Community college and upward mobility. Retrieved from [https://economics.stanford.edu/sites/g/files/sbiybj9386/f/mountjoy\\_2018\\_community\\_colleges\\_and\\_upward\\_mobility.pdf](https://economics.stanford.edu/sites/g/files/sbiybj9386/f/mountjoy_2018_community_colleges_and_upward_mobility.pdf)
- Mullin, C. M. (2012). Transfer: An indispensable part of the community college mission (Policy Brief 2012-03PBL). Retrieved from [https://www.che.sc.gov/CHE\\_Docs/Commission%20Calendar&Materials/Nov2012MtgMaterials/AACC\\_T\\_ransfer\\_to\\_LUMINA.PDF](https://www.che.sc.gov/CHE_Docs/Commission%20Calendar&Materials/Nov2012MtgMaterials/AACC_T_ransfer_to_LUMINA.PDF)
- Nakajima, M. A., Dembo, M. H., & Mossler, R. (2012). Student persistence in community colleges. *Community College Journal of Research and Practice*, 36(8), 591-613. doi:10.1080/10668920903054931
- Napoli, A. R., & Wortman, P. M. (1998). Psychosocial factors related to retention and early departure of two-year community college students. *Research in Higher Education*, 39(4), 419-455.
- National Center for Education Statistics. (2015). *Educational Longitudinal Study of 2002*. Retrieved from <http://nces.ed.gov/surveys/els2002/>
- Obama, B. (2015, February 6, 2015). Speech at Ivy Technical College. Retrieved from <http://wishtv.com/2015/02/06/complete-video-of-president-obamas-education-speech/>
- Pascarella, E. T., Smart, J. C., & Ethington, C. A. (1986). Long-term persistence of two-year college students. *Research in Higher Education*, 24(1), 47-65.
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research*. San Francisco: Jossey-Bass.
- Pascarella, E. T., Wolniak, G. C., & Pierson, C. T. (2003). Influences on community college students' educational plans. *Research in Higher Education*, 44(3), 301-314.
- Pike, G., & Kuh, G. (2005). A typology of student engagement for American colleges and universities. *Research in Higher Education*, 46(2), 185-209.
- Reynolds, C. L. (2012). Where to attend? Estimating the effects of beginning college at a two-year institution. *Economics of Education Review*, 31(4), 345-362. doi:<http://dx.doi.org/10.1016/j.econedurev.2011.12.001>
- Roksa, J., & Calcagno, J. C. (2008). Making the transition to four-year institutions: Academic preparation and transfer. *CCRC Working Paper, No.13*. Retrieved from <http://ccrc.tc.columbia.edu/media/k2/attachments/making-transition-four-year-institutions.pdf>
- Rouse, C. E. (1995). Democratization or Diversion? The effect of community colleges on educational attainment. *Journal of Business & Economic Statistics*, 13(2), 217-224. doi:10.2307/1392376
- Sandy, J., Gonzalez, A., & Hilmer, M. J. (2006). Alternative paths to college completion: Effect of attending a 2-year school on the probability of completing a 4-year degree. *Economics of Education Review*, 25(5), 463-471. doi:<http://dx.doi.org/10.1016/j.econedurev.2005.05.003>
- Scherer, J. L., & Anson, M. L. (2014). *Community colleges and the access effect: Why open admissions suppresses achievement*. New York: Palgrave MacMillan.
- Schmid, C., & Abell, P. (2003). Demographic risk factors, study patterns, and campus involvement as related to student success among Guilford Technical Community College students. *Community College Review*, 31(1), 1-16. doi:10.1177/009155210303100101
- Shapiro, D., Dundar, A., Ziskin, M., Chiang, Y.-C., Chen, J., Torres, V., & Harrell, A. (2013). *Baccalaureate attainment: A national view of the postsecondary outcomes of students who transfer from two-year to four-year institutions (Signature Report No. 5)*. Herndon, VA: National Student Clearinghouse Research Center.
- Stancill, J. (2014). UNC, community colleges smooth transfer path. Retrieved from <http://www.charlotteobserver.com/news/local/education/article9098993.html#.Uyi9CONdV8E>

- Terenzini, P. T., & Wright, T. M. (1987). Influences on students' academic growth during four years of college. *Research in Higher Education, 26*(2), 161-179.
- Titus, M. (2004). An Examination of the Influence of Institutional Context on Student Persistence at 4-Year Colleges and Universities: A Multilevel Approach. *Research in Higher Education, 45*(7), 673-699. doi:10.1023/B:RIHE.0000044227.17161.fa
- Townsend, B. K. (2001). *Four-year college students' use of community college: A middle-class*. Paper presented at the Annual Meeting of the Association for the Study of Higher Education, ERIC Document (ED462095), Richmond, VA.
- Townsend, B. K. (2008). "Feeling like a freshman again": The transfer student transition. *New Directions for Higher Education, 144*(4), 69-77.
- Townsend, B. K., & Wilson, K. B. (2009). The academic and social integration of persisting community college transfer students. *Journal of College Student Retention: Research, Theory & Practice, 10*(4), 405-423. doi:10.2190/CS.10.4.a
- Wang, X. (2009). Baccalaureate attainment and college persistence of community college transfer students at four-year institutions. *Research in Higher Education, 50*(6), 570-588. doi:10.1007/s11162-009-9133-z
- Young, J. T. N., & Litzler, E. (2013). Confirmatory factor analysis of transfer student adjustment. *Community College Journal of Research and Practice, 37*(11), 877-891. doi:10.1080/10668926.2010.515514