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Factors Contributing to the Upward Transfer of Baccalaureate Aspirants Beginning at Community Colleges

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Abstract

Incorporating the psychological perspective, this study examined factors associated with the upward transfer of baccalaureate aspirants beginning at community colleges. Based on the data from the National Education Longitudinal Study of 1988 and the Postsecondary Education Transcript Study, the study tested a logistic regression model to predict bachelor's degree-seeking community college entrants' transfer to four-year institutions. The results indicate that students' socioeconomic status, identification as African American, self-concept, high school test scores, and postsecondary enrollment patterns were significantly associated with the probability of transfer to four-year institutions among baccalaureate aspirants.

The past century has witnessed dramatically increased access to postsecondary education in the United States. The availability of community colleges contributed to this expansion of educational opportunities significantly. Undergraduate enrollment at community colleges increased from 5.9 to 7 million students from 2000 to 2008 and is projected to reach 8.2 million by 2019 (Aud et al., 2010). For a large number of these students, the community college represents an alternative route to the bachelor's degree or higher by means of transferring to a four-year institution (Bailey & Morest, 2006; Hoachlander, Sikora, Horn, & Carroll, 2003). Although gaining entry into postsecondary education is necessary, persisting and realizing degree goals are what eventually matters (Swail, Redd, & Perna, 2003).

For baccalaureate aspirants beginning at community colleges, the process of persisting towards their degree goals is structurally convoluted by the two-phase nature of the road to the baccalaureate. As both the transfer function and the number of baccalaureate aspirants at community colleges continue to be substantial, so do concerns about whether these students actually transfer to four-year institutions. Based on their extensive review of related research evidence from 1970 to 2000, Pascarella and Terenzini (2005) concluded that "students seeking a bachelor's degree who begin their college careers in a two-year public institution continue to be at a disadvantage in reaching their education goals compared with similar students entering a four-year college or university" (p. 381). Research based on more recent student populations has also indicated that this disadvantage is still being experienced by today's baccalaureate-aspiring students who attend community colleges (Long & Kurlaender, 2009). Pascarella and Terenzini further argued that part of the disadvantage appears to be associated with whether students in fact transfer to a four-year institution. Unfortunately, a considerable number of students who expect to earn a bachelor's degree but begin at a community college never transfer (Berkner, He, &

Cataldi, 2002). Therefore, characteristics associated with the successful transfer to four-year institutions among these students are important factors to be taken into account when considering the missions and functions of two-year institutions. They are especially critical in a time of increased accountability pressures facing postsecondary education when student outcomes such as transfer rates become key performance measures for many community colleges.

The purpose of this study is to identify factors that explain the transfer to four-year institutions among baccalaureate aspirants beginning at community colleges. This research examines how students' precollege characteristics, motivational beliefs, and academic behaviors while matriculating at community colleges affect the probability of their transferring to baccalaureate-granting institutions. While taking into consideration the effects of a number of variables, such as social background and race/ethnicity, that were extensively studied in the literature from earlier decades, this study incorporates the psychological perspective and seeks to explore the influence of less researched, but theoretically sound motivational factors on community college transfer. The results from this study will inform community colleges in formulating policies to positively impact student transfer and progress to degree goals.

Review of the Literature

Community College Transfer

For the past few decades, quite a number of studies have explored factors related to student transfer from two-year to four-year institutions (e.g., Anderson, 1981; Bailey, Jenkins, & Leinbach, 2005; Breneman & Nelson, 1981; Brint & Karabel, 1989; Cohen & Brawer, 1996; Deng, 2006; Dougherty, 1987, 1994; Lee & Frank, 1990; Lee, Mackie-Lewis, & Marks, 1993; Meznek, 1987; Roksa, 2006; Velez, 1985; Velez & Javalgi, 1987). Similar to most of the

literature addressing college student departure (e.g., Bean, 1986; Cabrera, Nora, & Castaneda, 1993; Tinto, 1987, 1993), many of these studies explored the effects of various student background characteristics and their results confirmed the pronounced impact of entry characteristics on educational outcomes (Pascarella & Terenzini, 1991, 2005). Significant background predictors of community college transfer include gender, socioeconomic status (SES), and race/ethnicity (e.g., Velez & Javalgi, 1987), first-generation status and family income (e.g., Bailey et al., 2005), as well as high school academic preparation (e.g., Cohen & Brawer, 1996). Recent work has also suggested that apart from grades, the academic resources students bring to college are strongly related to transfer to a four-year institution (Adelman, 1999; Hoachlander et al., 2003).

A considerable number of studies on community college transfer have focused on the effect of remediation. Despite the evident need for remedial education for many students entering community colleges, there has not been conclusive evidence on the effectiveness of remediation. Some empirical research has indicated that remedial interventions appear to promote transfer (Pascarella & Terenzini, 2005), while some other studies have suggested the opposite (Adelman, 1999; Bailey & Alfonso, 2005). This lack of consistent results on the effectiveness of remediation might stem from reliance on single institution data, small sample sizes, and analytical methods that involve minimal statistical controls (Bahr, 2008). In recent years, utilizing large-scale, multi-institutional data, and sophisticated research designs, a small but growing number of studies have produced more solid evidence on the efficacy of remediation (Attewell, Lavin, Domina, & Levey, 2006; Bahr, 2008; Bettinger & Long, 2005). Specific to transfer as an outcome, Bahr (2008) found that students who achieve college-level math skill through remediation have a transfer rate comparable to students who have college-level math

skill without the need for remediation.

Studies dealing with the effects of institutional factors on transfer have addressed the vocational versus liberal arts orientation of community colleges (e.g., Brint & Karabel, 1989; Deng, 2006; Dougherty, 1987, 1994; Roksa, 2006). Results from the research in this vein have also been equivocal. Brint & Karabel (1989) and Dougherty (1987, 1994) found that the vocational focus of community colleges decreases transfer rates and therefore hinders bachelor's degree attainment. This criticism, however, was challenged by recent research showing that controlling for individual and state characteristics, attending vocationally focused community colleges does not inevitably affect transfer negatively (Roksa, 2006).

Although these and many other studies have generated fairly important knowledge regarding various characteristics associated with the transfer of community college students, there are two weaknesses with the current state of research in this stream. First, when considering the effects of student precollege characteristics, these studies seldom accounted for factors beyond demographic variables, often introduced as statistical controls. Very few studies have explored the potentially powerful influence of pertinent psychological attributes. Consequently, existing literature on community college transfer offers little knowledge on the connection between transfer and student motivational beliefs, an important dimension shaping human behavior. A better understanding of the effects of relevant motivational attributes on transfer will inform community colleges' decisions regarding programs and interventions to transform these beliefs in a positive sense, since motivational beliefs may be overcome by training (Graham & Weiner, 1996).

In addition, most studies on community college transfer did not distinguish between students whose initial goal is baccalaureate or higher and who do not have such a degree goal.

Prior research has suggested that students' degree aspirations are strongly and positively associated with eventual educational attainment (Camburn, 1990; Carter, 2002; Pascarella & Terenzini, 1991, 2005). Analyzing in aggregate baccalaureate aspirants and students who aim at less than a baccalaureate degree may produce results that lead to unjustified criticism of community colleges for hindering students' educational attainment.

Psychological Perspectives

Informed by prior literature on community college transfer, this study also draws upon theories in psychology. When accounting for student entry characteristics, research based on existing models of college departure tends to limit its choices of variables to family background, race/ethnicity, gender, and prior academic achievement only, thus often neglecting psychological attributes. However, motivational beliefs that underlie individual behaviors may become especially relevant when studying baccalaureate aspirants beginning at community colleges. For this group of students, the road to the bachelor's degree is more complicated and entails more barriers as students negotiate a series of transitioning in postsecondary education (Wang, 2009). The baccalaureate aspirants who successfully completed the complex process of transfer might represent an especially motivated group (Lee et al., 1993). Therefore, this study also considers two relevant precollege psychological attributes, namely *perceived locus of control* and *self-concept*.

A motivational variable often linked to academic achievement, locus of control is defined as "a generalized belief about the extent to which behaviors influence outcomes (successes, failures)" (Pintrich & Schunk, 2002, p. 253). Individuals with an external locus of control tend to believe that their own actions have little impact on outcomes and they can do very little to alter

the outcomes; whereas individuals with an internal locus of control tend to think that their actions, which are largely under their control, determine outcomes (Pintrich & Schunk, 2002). Locus of control as a psychological construct is often studied in conjunction with academic outcomes (Pascarella & Terenzini, 1991; Perry, 1991) and has been empirically proved to be positively associated with a broad array of advantageous educational outcomes in various educational contexts (e.g., Findley & Cooper, 1983; Gifford, Mianzo, & Bricerio-Perriott, 2006; Pascarella, Edison, Hagedorn, Nora, & Terenzini, 1995). Based on existing research, it is theoretically sound and empirically interesting to postulate that perceived locus of control affects the transfer of baccalaureate aspirants beginning at community colleges. It is reasonable to expect that when facing external challenges, baccalaureate aspirants with stronger internal locus of control are more likely to persist in order to transfer to four-year institutions.

Another psychological construct of interest is self-concept, which represents the totality of a complex system of learned beliefs, attitudes, and opinions about the self (Purkey, 1988). Previous research on self-concept has confirmed that individuals' self-concept influences their educational, social, and occupational performance by motivating and guiding their behavior (Markus & Kitayama, 1991) and has a profound impact on student future success (Goleman, 1995; McClelland, 1993). Although still inclusive and somewhat limited in terms of how self-concept affects college student outcomes, results from a few studies have underscored the importance of this attribute in shaping college academic success (Boulter, 2002; House, 1995; Pascarella, Smart, Ethington, & Nettles, 1987; Smart & Pascarella, 1986). Since self-concept is related to individuals' ability to cope with the environment and to commitment and participation, it is logical to argue that baccalaureate aspirants who have more positive self-concept are more

likely to follow their educational goals than those with similar abilities and backgrounds but with less positive self-concept.

Incorporating the psychological perspective, this study aims at uncovering a distinct set of characteristics that are uniquely associated with the transfer of baccalaureate-aspiring students who access postsecondary education through community colleges. Restricting the sample to baccalaureate aspirants, rather than using degree aspirations as a control variable, permits the conceptual framework and the choice of variables to concentrate on factors and attributes that might be uniquely associated with this particular group of students. This focused approach helps produce evidence regarding the distinctive characteristics of these baccalaureate-aspiring students attending community colleges.

Methods

Databases

This study was based on the data from the National Education Longitudinal Study of 1988 (NELS: 88/2000) and the Postsecondary Education Transcript Study (PETS). NELS: 88/2000 was initiated by National Center for Education Statistics (NCES) to follow a national sample of eighth graders for 12 years (1988-2000). A supplementary study of NELS: 88/2000, PETS was completed in 2000 to gather official institutional records on student postsecondary enrollment. Transcript data were requested from 3,213 postsecondary schools that NELS: 88/2000 students reported attending.[1]

Together, NELS: 88/2000 and PETS offer rich information that provides researchers a unique K-16 perspective to examine student access to postsecondary institutions and persistence

[1] For a more comprehensive description of the NELS survey system and database, refer to NCES website: http://nces.ed.gov/surveys/nels88/.

towards degree completion. In addition, NELS's distinctive merit is that it includes student pre-college psychological variables that are of substantial interest to this study.

Sample

The defining variables for baccalaureate aspirants beginning at community colleges were the postsecondary school type for students' true first institution after high school graduation and students' educational expectations in 1992 when they were high school seniors.[2] Students who expected to earn a bachelor's degree in 1992 and attended a community college as their first true postsecondary institution in 1992 and 1993 were selected. Approximately 2,300 students out of the 12,144 cases in the NELS: 88/2000 database enrolled in a community college during 1992 and 1993, soon after high school graduation. For the purpose of this study, I retained only the 1,421 community college entrants who expected to complete a bachelor's degree or higher. I merged the data from NELS and PETS with the help of the accompanying Electronic Code Books (ECB) to create a new dataset for this study.

Measures

Given the study's primary focus on the transfer of bachelor's degree-seeking community college students, the dependent variable was a dichotomous variable measuring whether a student transferred to a four-year institution (a dummy variable that equals to one if the student transferred to a baccalaureate-granting institution and zero otherwise). True community college

[2] Some scholars (e.g., Pascarella, 1999) have raised doubt about whether students' educational expectations measured at one point in time are certain enough to clearly define baccalaureate aspirants. To explore this question, I ran all the analyses for two different samples: a) the sample selected for this study and b) a slightly different sample selected based on the consistency level of educational expectations. This second sample combines responses to two sets of variables in 1990 and 1992 to estimate the consistency level of a student's anticipations for ultimate educational attainment. The results based on this alternative definition of the sample do not differ substantially from those based on the actual sample used in the study.

to four-year transfer involved attending community colleges as first postsecondary education institutions, earning more than 10 credits from community colleges (with or without an associate degree), and subsequently earning more than 10 credits from baccalaureate-granting institutions, with or without earning a bachelor's degree.

Informed by previously discussed literature on community college transfer and theories in psychology, the study examined the effects of a unique set of independent variables on the probability of transfer. Descriptive statistics and the definitions of the independent variables are presented in Table 1.

[Insert Table 1 about here.]

Demographic Characteristics

Demographic variables including gender, race/ethnicity, and SES were available in the PETS dataset. Gender was dummy coded (1 = female, 0 = male). Race/ethnicity was coded as a series of three dummy variables: Black, Hispanic, and Other, with non-Hispanic Whites as the reference category. Due to the small number of cases of Asians and American Indians in the sample, these two categories, together with Unknown, were collapsed into the "Other" race/ethnicity category. SES was represented by socioeconomic status quintile in 1992, which was derived from a composite measure of parents' education, occupation, and income.

Academic Preparation

Students' high school academic ability was measured by second follow-up (12th grade) standardized test composite scores in reading and math. Academic resources was characterized

by the type of high school program the student was involved in at his or her last high school and was dummy coded (1 = academic, 0 = vocational and other).

Psychological Attributes

In the second follow-up study of NELS, 12th-grade students were asked to self-report on 13 survey items about their self-concept and perceived locus of control, using a four-point Likert scale ranging from *strongly agree* to *strongly disagree*. I performed a factor analysis on these items using a principal component extraction approach. Two factors resulted from the analysis with five items loaded on each of the two factors: self-concept and locus of control. I summed the items to create scales representing students' self-concept and perceived locus of control respectively. Results from the factor analysis are available from the author upon request.

Postsecondary Experience

The information on student attendance patterns was available in the transcript study dataset. Student enrollment intensity was dummy coded (1 = enrolled at the institution full-time, 0 = enrolled at the institution less than full-time). Similarly, continuous enrollment was coded as one if student postsecondary enrollment was continuous without interruption and zero otherwise. Also included was the ratio of earned credits versus attempted credits during the first year, as previous research has indicated that this ratio is related to the persistence of recent high school students entering community colleges(Adelman, 2006). In addition, external demand was measured by whether the student had a dependent(s).

Missing Data

All the selected cases were examined for missing data. The variable with the largest amount of missing data is students' high school academic ability, represented by 12th-grade cognitive test scores collected during the second follow-up study. Approximately 24% of the cases did not have this information. To address this issue, I substituted the values of the same variable in the first follow-up study when students were tenth graders. Given the limitations of extant datasets, this is a feasible and logical way of data imputation. In fact, the test scores collected at the two waves were highly correlated ($r = 0.903$, $p<0.01$). This imputation reduced the proportion of missing cases on test scores to approximately 4%. The extent of missing data on several other variables was small. As a final step to address missing data, I used listwise deletion, i.e. only cases with complete information on each variable were included in the analysis. Though this resulted in a loss of a small number of cases during the analysis, listwise deletion, compared to all other conventional methods that deal with missing data, is quite robust when estimating multiple and logistic regression models (Allison, 2002).

Analysis

I adjusted for the complex survey design effects associated with NELS: 88/2000 through Stata's survey commands. I also incorporated the appropriate sampling weight variable (F4F2P2WT) to compensate for unequal probabilities of selection and to adjust for the effects of nonresponse. To answer the research question, I conducted a binomial logistic regression analysis to estimate the influence of the set of independent variables on the probability of student transfer to a baccalaureate-granting institution.

To express the meaning of logistic regression coefficients in a more intuitive way, I reported

discrete changes in probability (delta p), which measures the change in the probability of the outcome of interest occurring, controlling for other variables in the model (Peng, So, Stage, & St. John, 2002).

Limitations of the Study

This study has two important limitations. First, as extant databases, NELS and PETS do not always contain information that addresses a researcher's particular interest. For example, it would be helpful if the datasets contained information on articulation agreements. Prior research on transfer has indicated that transferring credits to a four-year institution is a serious concern many baccalaureate aspirants face (Glass & Bunn, 1998), and many community college transfer students lose a portion of the credits they earned at the community colleges they attended, resulting in a failure to develop a coherent curriculum of courses, as well as difficulty to find the means with which to pay for the extended period of study at the four-year institutions (Prager, 1993). This may pose obstacles in the transfer process of baccalaureate-aspiring community college students and it would be interesting to include variables on articulation agreements between community colleges and four-year institutions in the models to explore whether and/or how they affect student transfer. Unfortunately, this information is not included in the datasets. Another example is the information regarding remediation variables. PETS reports this information based on students' transcripts throughout their entire postsecondary education as of 2000, and it is impossible to determine when and where students took the remedial courses. As a result, the study was not able to produce an assessment regarding how remediation predicts student transfer.

In addition, the complex survey design of the NELS database presents some complications

for data analysis. I used specialized software (Stata) that provides the appropriate survey commands to answer the research question, which is a desirable solution for analyzing data from complex survey recommended by many experts in the field (Hahs-Vaughn, 2005; Thomas & Heck, 2001). Although this is the best available approach because it produced the most accurate parameter and variance estimation, it has to be noted that, due to the current unavailability of more sophisticated diagnostic procedures and their software applications, the procedures for assessing the fit of the regression model were carried out with methods that treat the data as if they arose from a simple random sample (Hosmer & Lemeshow, 2000).

Results

The logistic regression analysis examined the likelihood of baccalaureate aspirants' transfer to four-year institutions. Table 2 summarizes the results from this analysis.

[Insert Table 2 about here.]

As shown in Table 2, among baccalaureate-aspiring students beginning at community colleges, the likelihood of transferring to four-year institutions was associated with the following factors: being Black, SES, high school test score, self-concept, as well as full-time enrollment and continuous enrollment at community colleges.

Specifically, controlling for other independent variables in the model, Black students were 26% less likely to transfer, compared to White students. One quintile increase in SES was associated with 7% more likelihood of transferring. A one-point increase in high school test scores was associated with 1% more likelihood of transferring to four-year institutions. With

one-point increase on a summated scale ranging from 5-20 measuring self-concept, the likelihood of transfer increased by 2%. Students who enrolled full time were 21% more likely to transfer than students who enrolled part time. Similarly, students who enrolled continuously were 35% more likely to transfer to four-year institutions than their counterparts who experienced discontinuous enrollment.

Discussion and Implications

The findings from this study suggest that the upward transfer of baccalaureate aspirants who access postsecondary education through community colleges can be explained by a constellation of various personal, sociological, and psychological factors, as well as student attendance patterns in postsecondary education.

As the SES measure used in this study is a composite of parental education, occupation, and income, the result regarding SES is an estimate of the combined influence of all the three factors. Baccalaureate aspirants with higher SES are more likely to successfully transfer to four-year institutions, essentially the first step towards their degree goal, than their counterparts from families of less favorable socioeconomic status. Similar findings have been reported in many previous studies that examined the factors related to the probability of transferring from two-year to four-year colleges (e.g., Bailey et al., 2005; Bradburn, Hurst, & Peng, 2001; Dougherty & Kienzl, 2006; Karabel, 1972; Velez & Javalgi, 1987). Among other demographic variables in the model, being Black has a significant impact on the probability of transferring to a baccalaureate-granting institution. This finding is also consistent with the results of the studies from earlier decades showing that African-American students suffer a disadvantage in transferring (e.g., Anderson, 1984; Breneman & Nelson, 1981; Dougherty, 1987; Velez & Javalgi, 1987). However,

this study did not find any difference based on gender as those earlier studies suggested. This finding seems to indicate that it might be the disadvantage in SES, rather than race/ethnicity and gender—with the exception of being Black—that impedes community college students from transferring (Lee & Frank, 1990; Nora & Rendon, 1990). This confirmed positive correlation between SES and transferring highlights the fact that even though the availability of community colleges has provided an easy and alternative access to postsecondary education for those high school graduates seeking a bachelor's degree or above, sorting by class still seems to exist in community colleges. It might negatively affect many students from more humble social backgrounds, regardless of their gender and race/ethnicity and despite their aspirations that go beyond an education from community colleges.

Given the critical role of prior academic achievement in projecting student persistence and degree completion (Pascarella & Terenzini, 1991, 2005), the positive relationship between high school test score and transfer is not surprising, since transfer is arguably a legitimate and essential part of the process of persisting to degree completion for baccalaureate aspirants.

The relationship between self-concept and the probability of transfer, though not very strong, indicates that a more positive self-concept is associated with better chances of transfer among baccalaureate aspirants attending community colleges. A first to explore the impact of self-concept on community college transfer, this study reveals a finding that resonates with the results from a prior study that focuses on the relationship between pre-college self-concept and collegiate academic achievement. Pascarella et al. (1987) found that there is a positive association between pre-college self-concept and student collegiate academic achievement, even when other factors such as secondary school achievement, degree aspirations, and the selectivity of the institution attended were controlled for. The finding from this study offers additional

empirical support to the positive relationship between self-concept and student outcomes specifically pertaining to community college students. In addition, self-concept has been documented as motivating and guiding behavior and influencing the individual's educational, social, and occupational performance (Markus & Kitayama, 1991). In light of this broader theoretical lens of motivation psychology, community college students with more positive self-concept are likely to possess stronger motivation to cope with the learning environment at the postsecondary level and exhibit a greater degree of commitment and participation which would potentially lead to successful transfer.

Consistent with prior research (Dougherty & Kienzl, 2006), full-time enrollment and continuous enrollment both play a significant, positive role in predicting the probability of transferring to four-year institutions. Indicative of a stronger educational commitment and perhaps less external demands, full-time enrollment and continuous enrollment might also strengthen student academic and social integration into postsecondary education by exposing students more to the academic and social resources available on campus, thus facilitating their progress, which is transfer in this case, in reaching their educational goals.

These findings point to several important implications for policy and practice. First and foremost, it is pivotal for state legislators and community college leaders to revisit the *cooling-out effect* of attending community colleges (Clark, 1960), particularly the effect on those baccalaureate aspirants from poorer socioeconomic background. Although community colleges have extended access to postsecondary education for socioeconomically disadvantaged students who otherwise would not have attended college at all, the sorting mechanism based on class might persist to perpetuate social inequality to some degree, not only between community college and four-year university enrollees, as evidenced by prior research, but also among

students who were hoping to use community colleges as an alternative route to the bachelor's degree, as revealed by this study. It is crucial for policymakers to consider all implications that policies and practices intended to promote upward transfer have for students with lower socioeconomic status. Students from underprivileged socioeconomic background may also be challenged in the areas of social and cultural capital, which research shows are essential to navigating the postsecondary educational system. For students who are seeking an untraditional pathway to the baccalaureate through transfer, this system may seem more complicated with various transfer policies and articulation agreements. In addition, socioeconomically disadvantaged students are most in need of financial aid and therefore most vulnerable when such aid is lacking. Therefore, the development and influence of various transfer-related policies and programs need to be considered in relation to student socioeconomic background and how such policies and programs may be affected by the socioeconomic disparity among students. It leaves the state, the community college, as well as the four-year institution to develop feasible plans and initiatives that aim at sustaining the educational aspirations of students from more humble socioeconomic backgrounds.

Equally important is the finding that self-concept, as a pre-college motivational attribute, is related to baccalaureate aspirants' transfer, which underscores the importance of creating educational communities that promote positive self-concept among students. This is particularly noteworthy for the student population of this study because, in order to navigate the less traditional educational trajectory of transfer to realize their educational goals, these students need to develop positive beliefs about themselves along the way. Policymakers at two-year colleges are therefore charged with the responsibility of identifying effective educational programs and practices that mediate psychological traits to positively influence students' learning and

educational outcomes. Since self-concepts are formed through experience with and interpretations of an individual's environment and are influenced by evaluations by significant others, reinforcements, and attributions for the individual's own behavior (Marsh & Hattie, 1996), community college staff should help cultivate in students who wish to transfer the belief that their choice of a community college education is a legitimate and effective route to the baccalaureate degree. Equally important, academic advisors and counselors should place an emphasis on clearly explaining the transfer process, articulation policies, and the academic practices and expectations at four-year institutions. They should also make students aware of available campus support and counseling programs and services at both two-year and four-year institutions designed to help students to meet those expectations. Through this process, students can become aware of the fact that their successful transfer can be essentially determined by their own efforts, self-initiation, and self-direction.

The very fact that high school test scores significantly predicts baccalaureate aspirants' upward transfer once again pinpoints the core status of academic performance in education and its potential influence on virtually every aspect and dynamic of one's postsecondary career. From the perspectives of policymakers and school leaders, improving student learning and academic performance might represent the most effective approach to promoting desirable student outcomes.

The findings on the impact of enrollment patterns may suggest the need to encourage stronger enrollment intensity. Mandatory requirement for full-time enrollment during particular semesters, as practiced in many institutions, is only one of the possible approaches to encourage stronger enrollment intensity. Since part-time students may face competing demands with work or family or may be unable to afford full-time enrollment (Goldrick-Rab, 2010), it is more

important to offer a wider choice of courses and more flexibility in scheduling for students who might be otherwise constrained by external demands and work schedule from participating in learning full time. Additionally, institutional efforts should be directed at promoting learning and a sense of learning community. These efforts should particularly reach out to and involve part-time students, because it might be what is associated with full-time enrollment (e.g., a stronger sense of community, stronger institutional commitment, and more interaction with students and faculty), rather than full-time enrollment per se, that facilitates student learning and promotes desirable educational outcomes. If the opportunities that help develop learning communities and academic socializations are made more available to part-time students (through the use of technology for example), the potential negative effects of attending part-time might be mitigated.

Conclusion

Students who access postsecondary education through community colleges affect the development of the missions of the institutions they attend, two-year or four-year, not only by the very unique characteristics they have, but also by the educational goals and aspirations they embrace. The most prominent of these goals is arguably to attain a bachelor's degree by transferring to a four-year institution. This study shows that upward transfer of baccalaureate aspirants is associated with their socioeconomic background, being Black, self-concept, high school achievement, and postsecondary enrollment patterns. These findings are useful information for community colleges in providing effective educational practices to help these students move further towards their degree goals.

As college tuitions keep spiraling upward, community colleges are likely to increasingly become the entry into postsecondary education for many disadvantaged students. How well

community colleges respond to the needs and challenges facing their students is going to be tested in the days to come. Only when steps are taken in facilitating the transfer process and promoting the long-term educational outcomes for baccalaureate aspirants beginning at community colleges can the broader issues of educational access and equity be addressed.

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Table 1

Weighted Means, Standard Deviations, and Definitions for Independent Variables

Independent variable	Mean	S.D.	Definition
Demographic characteristics			
Female	0.49	0.50	Dummy variable (coded 1 for females and 0 for males)
Black	0.09	0.29	Dummy variable (coded 1 for African Americans and 0 for Whites)
Hispanic	0.13	0.34	Dummy variable (coded 1 for Hispanics and 0 for Whites)
Other	0.06	0.23	Dummy variable (coded 1 for Asians, Indian Americans, and Unknowns combined and 0 for Whites)
SES	3.37	1.28	Quintile based on a composite measure of parents' education, occupation, and income
Academic preparation			
High school curriculum	0.77	0.42	Dummy variable (coded 1 for academic curriculum and 0 for vocational and other)
Test score	51.11	8.18	Standardized composite test score (math and reading)
Psychological attributes			
Locus of control	15.14	2.59	Summated scale measuring perceived locus of control
Self-concept	16.15	2.34	Summated scale measuring self-concept
Postsecondary experience			
Full-time enrollment	0.82	0.38	Dummy variable (coded 1 if student enrolled full-time)
Continuous enrollment	0.58	0.49	Dummy variable (coded 1 if student enrolled continuously)
Ratio of earned credits versus credits attempted in the 1st year	0.82	0.30	Ratio of earned credits versus credits attempted during the first year
Having dependent	0.04	0.20	Dummy variable (coded 1 if student contributed to anyone else's support)

Table 2

Logistic Regression Parameter Estimates: Transfer to Four-Year Institutions

Independent variable	*b*	*S.E.*	Delta p
Female	-.22	.21	
Black	-1.33**	.40	-0.26
Hispanic	-.28	.27	
Other	-.91	.57	
SES	.29**	.09	0.07
Test score	.05**	.02	0.01
High school curriculum	.31	.29	
Locus of control	-.08	.06	
Self-concept	.08*	.03	0.02
Full-time enrollment	.95**	.32	0.21
Continuous enrollment	1.54**	.23	0.35
Ratio of earned credits versus credits attempted in the 1st year	-.03	.03	
Having dependent	.34	.51	

Note. Delta p's are reported only for statistically significant coefficients.

* $p<0.05$, ** $p<0.01$