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The likelihood of transfer for Black males in community colleges: Examining the effects of engagement using multilevel, multinomial modeling

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Research indicates that Black male collegians tend to disproportionately seek out postsecondary educational opportunities at community colleges; despite this, a paucity of Black men actual transfer to four-year colleges and universities. In order to help facilitate transfer for Black male community college students, this article investigates the effects of student engagement on Black male students' self-reported likelihood of transfer. The implications of this study provides compelling context for institutional practice and future research to help community colleges be more intentional about improving transfer outcomes for among Black male students.

Keywords: Black males, community college, transfer

Community colleges serve many functions and one of the primary functions of these institutions is to facilitate students' ability to transfer into four-year institutions of higher education. Students of color in general and Black males specifically are more likely to seek out postsecondary opportunities at two-year colleges (Wood & Williams, 2013). Of the vast majority of those who will attend two-year colleges, 81.9% will pursue their education at public community colleges. According to research (e.g., Bush, 2004), many Black men attend these institutions because they perceive that they can facilitate their social and economic mobility. A large number of community college students enroll with the intent to transfer into a four-year college or university. Specifically, 43 % of Black men indicate intent to transfer upon enrollment in the community college.

Despite this, limited empirical research has investigated the likelihood of transfer for Black male community college students. One study that comes close is Nora and Rendón's (1990) research on factors predictive community college students' predisposition to transfer. Using data from students attending six community colleges in Texas, Arizona, and California, Nora and Rendón explored the applicability of Tinto's (1975) model of attrition on student's predisposition to transfer. Specifically Nora and Rendón (1990) were interested in the effect of academic (e.g., library use, interactions with faculty, attending campus lectures) and social integration (e.g., involvement in extra-curricular activities, seeking out special campus events, reading the college newspaper) on students' predisposition to transfer. Findings from their study indicated that students with greater levels of academic and social integration were significantly more likely to have transfer goals than their peers. A critical limitation to Nora and Rendón's (1990) research was that the sample included only Hispanic (74%) and White (26%) students. To this end, their study did not provide insight on Black students' predisposition to transfer. Despite these drawbacks, Nora and Rendón's study served as a conceptual guide for this research on predisposition to transfer among Black men.

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With this in mind, the purpose of this study was to investigate the effects of student engagement on Black male students' self-reported likelihood of transfer. Specifically, the effect of engagement on transfer likelihood focused on Black men who indicated a predisposition to transfer to a four-year college or university. Four types of engagement were explored, including: active and collaborative learning, faculty-student interaction, exposure to diversity, and usage of student services. Three primary questions guided this research:

- Research question 1: Is there a significant relationship between Level 1 measures of engagement (with controls) on Black male community college students' self-report likelihood to transfer?
- Research question 2: Is there a significant relationship between Level 1 and Level 2 measures of engagement (with controls) on Black male community college students' self-report likelihood to transfer?
- Research question 3: Do engagement predictors at Level 1 have randomly varying slopes across colleges? If so, is there a relationship between college context and the slope relationship?

Guided by the research questions, this study serves to advance the literature on Black men, transfer, engagement, and community colleges. This study adds important context to the literature by filling the void on transfer predisposition for a population for which limited research exists (e.g., Harper, 2009). This is a particularly salient contribution given that community colleges serve as the primary pathway into postsecondary education for Black men (Bush & Bush, 2010). Understanding the predictors of a disposition to transfer for Black men can serve to bolster programming, policies, and practices designed to enhance transfer outcomes for these students. To provide context on this topic, the subsequent section of this article will examine extant literature on predictors of predisposition to transfer.

RELEVANT LITERATURE

This review will focus on factors that predict students' intention to transfer because it is most relevant to this current article. Tinto's (1975; 1993) model of student departure has served as an explicit or implicit framework for investigations of transfer (e.g., Dougherty & Kienzl, 2006; Nora & Rendón, 1990). Tinto's theory articulates how formal and informal social systems affect student success in college over time. A key component of his theory is the notion of integration, where students are more likely to be successful in college if they become integrated into the academic and social milieu of campus. Greater levels of integration are associated with greater student commitment to the institution and to their academic success.

Some scholars have examined the effect of background factors and academic behaviors on student transfer. Lee and Frank (1990) found that greater social class and high school performance measures (e.g., academic track, math courses taken, GPA) were predictors of transfer. Findings regarding the importance of social class have also been supported by other studies (Allen, Robbins, Casillas & Oh, 2008; Dougherty & Kienzl, 2006). Further research also affirmed Lee and Frank's (1990) findings regarding the importance of prior academic performance (e.g., Crisp & Nora, 2010; Jepsen, 2006). Additional research has examined the effect of background predictors on transfer. For example, Wood, Nevarez, and Hilton (2011) examined the effect of background characteristics on student transfer. Specifically, using data from the Beginning Postsecondary Students Longitudinal Study of 2009, they explored background predictors in three areas, including (a) demographic variables, (b) family variables, and (c) performance variables. Findings from their study illustrated that older students, minorities, students with disabilities, low-income students, and part-time attendees were significantly less likely to transfer. In particular, their findings around enrollment status are the most compelling, illustrating that the odds of students enrolling full-time are 5.41 times greater than that of students enrolling part-time. Similarly, Crisp and Nora (2010) also identified full-time enrollment as a positive predictor of transfer. In addition, Wood and colleagues' (2011) findings regarding age are affirmed in prior research, indicating that younger students have a greater likelihood of transfer (Dougherty & Kienzl, 2006; Jepsen, 2006).

In terms of college-level variables, academic matters (e.g., GPA) are also determinants of transfer (Allen et al., 2008; Dougherty & Kienzl, 2006). Furthermore, as noted by Lee and Frank (1990) the most important variables (as assessed by standardized betas) on transfer are college academic behaviors, particularly the number of courses taken in math and science. Wood and colleagues (2012) extended on this work. Using data from BPS, they used a hierarchical logistic regression approach to model a full range of transfer predictors including: background variables, academic and social integration variables, and environment variables. Their findings, based on a national sample of students from all races, found that being younger and having greater high school performance (GPA) was predictive of transfer. They also found that being a non-first generation student was also associated with transfer. However, most compelling are their findings around integration. While academic integration variables (e.g., faculty informal meetings, talking with faculty outside of class, and meeting with academic advisors) were significant in combination with background variables, they were not significant in subsequent models with other blocks or the full model. However, social integration factors were integral transfer predictors, with participation in school clubs, and participation in school sports being strong indicators of transfer. Somewhat in contrast, Hurtado, Carter, and Spuler (1996) noted that positive faculty-student interaction and other collegians were indeed integral predictors of transfer.

While Hurtado and colleagues (1996), Nora and Rendón (1990), and Wood, Nevarez, and Hilton (2012) generally support the notion that integration has a positive effect on predisposition to transfer and actual transfer, some scholars have found otherwise. For example, Dougherty and Kienzl (2006) examined the effect of integration on transfer, finding that academic and social integration measures were not significantly predictive of transfer. The only exception was students' level of participation in study groups, which was seen as a positive contributor to transfer. Furthermore, Allen and colleagues (2008) found that commitment to the institution (as a core outcome of integration), social connectedness on campus, and academic self-discipline did not have significant direct effects of transferring versus dropping out. As evidenced by the aforementioned studies, the relationship between integration and transfer remains in question.

It is important to note that although there are important nuances between integration and engagement (Wolf-Wendel, Ward, & Kinzie, 2009) the manner in which *most* prior research has operationalized these two terms in questionnaires bears little difference. Primarily, measures of students' efforts, campus service use, and faculty engagement has been used as proxies for both integration and engagement. As a result, while this current study is focused on the effect of engagement on transfer intent, it does (at least in a general sense) extend on the general student success literature.

While research has examined the effect of background, academic, and social factors on transfer, fewer studies have given attention to institutional characteristics. Wassmer and associates (2004) used state-level data from the California community college system to determine whether institutions themselves had an effect on transfer. Using a six-year transfer time frame, they found several positive predictors of transfer, such as institutions with higher percentages of students under 25 years of age, higher percentages of Asian American students, number of students enrolled, and percentage of degrees in general studies. Regional predictors such as academic performance index and county population density were also predictive of transfer. Wassmer and colleagues (2004) also identified negative predictors of transfer, including percentage of female, African American, and Latino students. They concluded that institutional characteristics served to create organizational cultures and climates that were, in some cases, supportive of transfer while others were not. Following a similar logic, Eagan and Jaeger (2009) have shown that institutional hiring practices can also have an effect on transfer, as greater percentages of part-time faculty exposure are associated with a lower likelihood of transfer. Findings from Ornelas and Solórzano (2004) seem to affirm the importance of institutional considerations and shed light on *why* institutional characteristics can foster or inhibit transfer. Ornelas and Solórzano interviewed students, counselors, faculty, and administrators at a community college in California to inquire about factors affecting transfer among Latino students. All groups indicated institutional barriers

that impeded transfer, ranging from limited resources, campus politics, and a lack of institutional commitment to transfer (Ornelas & Solórzano, 2004).

In terms of environmental factors, students are also less likely to transfer due to financial challenges and the need to work (Nora & Rendón, 1990; Wood et al., 2012). For example, Crisp and Nora (2010) noted that the number of hours students worked per week had a negative effect on their likelihood to transfer. Other work-related factors are also of importance, for example, Lee and Frank (1990) found that the age at which students were planning to begin full-time work, and job satisfaction (for working students) were all significant predictors of transfer. Another factor that seems to pull students away from their academic pursuits is having children. For instance, Wood and colleagues (2012) found that the odds of a student with dependent children transferring were 42.9% lower than that of students without children. Bearing the aforementioned in mind, the next section discusses the methods employed in this research.

METHODS

This study employed data from the Community College Survey of Student Engagement (hereafter referred to as CCSSE). CCSSE is a large-scale institutional assessment employed by community colleges in 48 states and the District of Columbia as well as other regions--The cohort used in this sample also includes colleges from five Canadian provinces, Bermuda, and the Marianna Islands. Established in 2001, CCSSE was developed to support colleges in understanding educational practices that foster learning, development, and persistence in the community college. Specifically, the instrument highlights students' time spending patterns, engagement with faculty, and effective educational practices (McClenney, 2007). As indicated within the instrument's name, CCSSE is used to benchmark engagement patterns among students, conceptualized around the quality of students' effort in postsecondary contexts (Kuh, 2009). CCSSE respondents are randomly selected at the classroom level from credit courses.

CCSSE data were employed in this study, given that the data source represents the largest and most comprehensive sample of community college student engagement patterns in the nation. Moreover, CCSSE's engagement constructs have shown strong psychometric properties in recent analyses of the instruments internal reliability and validity (Marti, 2008). Data from this study were derived from the 2009 to 2011 three-year CCSSE cohort. In this cohort, there were 699 participating institutions with a total of 443,818 respondents. In this sample, a total of 43% of respondents were male and 11% were of Black or African American descent (CCSSE, 2012a, 2012b). A total of 11,384 African American/Black males within 260 colleges were represented in this three-year cohort. This population was delimited to those men who indicated a predisposition to transfer. This reduced the sample size to 9,354 Black men nested within 259 colleges who indicated that transferring to a four-year college or university was either a primary or secondary goal.

Measures

The outcome variable employed in this study is students' self-report assessment on their own likelihood of transferring. In the survey, students are asked to indicate factors that they believe would result in their departure from class or from the college. Primarily, the factors assessed in this area include environmental variables (e.g., working full-time, caring for dependents, financial challenges) that are often associated with premature departure (attrition) from college. However, in this questioning block, students are also asked whether they will leave the college due to transferring to a four-year college or university. Given that this study population was delimited to students who indicated intent to transfer as a primary or secondary goal, this item allows for a self-reported assessment on whether the student believes that their transfer goals will actually come to fruition. This question ranges on a four-point Likert scale from not likely to very likely. The percentage breakdown for each respective category is as follows: not likely (21.4%), somewhat likely (15.8%), likely (21.1%), and very likely (40.8%). For ease of interpretation and to enhance the utility of the findings for practice, the categories somewhat likely and likely were collapsed

(accounting for 36.9% of respondents). Initially, the researchers sought to employ an ordinal regression approach which would have employed all four categories; however, the assumption of parallel lines was not met. This assumption is essential for accurate estimates (O'Connell, 2006; Scott, 1997; Scott & Cheng, 2004). When not met, a multinomial approach is typically employed as the most appropriate analytic approach (Chen & Hughes, 2004); therefore, the categories were collapsed for ease of interpretation. This resulted in three final outcome categories, not likely, likely (inclusive of somewhat likely) and very likely.

Four primary predictors were employed in this study. These predictors represented four scales of student engagement (e.g., active and collaborative learning, faculty-student interaction, exposure to diversity, usage of campus services). To identify the underlying structures of the engagement variables within the CCSSE data, the authors' examined the dimensionality of potential measures using exploratory factor analysis. Using a maximum likelihood procedure, scree tests and associated eigenvalues were examined to determine the number of factors to rotate. Rotations were conducted using a Varimax procedure. The four scales, which emerged from this process, closely resembled CCSSE benchmarks identified through prior validation research (see Marti, 2008; McClenney & Marti, 2006). The four scales, their reliability, and the questions associated with each scale are reported:

- Active and collaborative learning (a=.71)—entails students' active efforts in academic matters and engagement in collaborative learning experiences. This construct was derived from seven items, "made a class presentation", "prepared multiple drafts of papers", "integrated ideas from various sources", "worked with group on project", "worked with classmates outside of class", "taught or tutored other students", and "participated in community projects". These items were collected from respondents on a four-point scale, ranging from 'never' (coded 1) to 'very often' (coded 4).
- Faculty-student interaction (a=.73)-—represents student interactions and discussions with faculty members both inside and outside of the classroom. This construct was derived from six items, "asked questions in class", "discussed grades or assignments with instructor", "talked about career plans with faculty", "discussed ideas from class with faculty", "worked harder than thought to meet instructor's standards", and "worked with instructors on non-course activities". These items were also collected from respondents on a four-point scale, ranging from 'never' (coded 1) to 'very often' (coded 4).
- Exposure to diversity (a=.73)-—refers to students interactions with fellow collegians who are different than them. This construct was derived from three items, "discussed ideas from class with others outside of class (e.g., students, family members, co-workers)", "had serious conversations with students of other races", and "had serious conversations with students of other beliefs (e.g., religious, political, personal values)".
- Usage of student services (a=.73)—represents students frequency of use of campus academic services. This construct was comprised of five items, indicating usage of "academic advising/planning", "career counseling", "peer and other tutoring", "skills labs (e.g., writing, math)", and "computer lab". Use of campus services was determined on a three point scale, ranging from 'rarely/never' (coded 1) and 'sometimes' (coded 2) to 'often' (coded 3). The response options for the academic service variables also allowed participants to mark 'don't know'. Adhering to prior protocol from CCSSE in constructing academic service scales, this response type was not included in the analyses (see Marti, 2008).

All variables in each scale were summed and standardized to have a mean of zero (grand mean centered). Scales were employed in the analyses at the student-level (Level1) and at the college-level in aggregate form (Level 2).

In addition to the predictor variables, models also employed a number of control variables. These variables sought to account to potentially extraneous factors that can influence students' perceptions of transfer likelihood. At Level 1, the eight control variables employed in this study included: (a) respondent's age--an ordinal variable reflecting the age of the respondent in class intervals;(b) credits earned--an ordinal variable indicating the total number of credits a respondent had earned; (c) generation status--a categorical variable indicating whether or not the respondent was first-generation collegian; (d) developmental education--a categorical variable indicating whether the respondent enrolled in or planned to enroll in a remedial course (e.g., math, writing, reading); (e) grade point average--an ordinal variable reflecting respondents cumulative grade point average in college coursework; (f) hours work per week--an ordinal variable indicating the total hours a respondent works per week in class intervals; (g) time studying--an ordinal variable reflecting the total hours respondents spent studying for courses during an average week; and (h) extra-curricular involvement--an ordinal variable indicating the total number of hours per week

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students spent participating in extra-curricular/co-curricular activities. At Level 2, this study employed two control variables, reflecting both the size and urbanicity (e.g., urban, suburban, rural) of each college. Descriptive statistics for the variables modeled are featured in Table 1 while the coding schema for control variables is available in the Appendix.

Table 1

Descriptive Information of Analytic Sample

	Variable Name	Percent	*Mean*	*SD*
Outcome	Transfer Likelihood			
	Not Likely	21.6%		
	Likely	37.3%		
	Very Likely	41.1%		
Student Level: Defining Variables	Age		.000	1.066
	Credits Earned		.000	1.350
	First Generation Status			
	Missing	32.1%		
	First Generation	23.7%		
	Non First Generation	44.2%		
	Developmental Education			
	Non-Developmental	35.1%		
	Developmental	60.6%		
	Grade Point Average		.000	1.291
	Hours Worked Per Week		.000	2.008
	Time Studying		.000	1.113
	Extra-Curricular Involvement		.000	1.038
Student Level: Engagement	Active and Collaborative Learning		.000	0.535
	Faculty-Student Interaction		.000	0.576
	Exposure to Diversity		.000	2.441
	Usage of Student Services		.000	2.178
College Level: Engagement	Active and Collaborative Learning		.000	0.132
	Faculty-Student Interaction		.000	0.126
	Exposure to Diversity		.000	0.473
	Usage of Student Services		.000	0.460
College Level: Characteristics	Urbanicity			0.848
	Urban	40.8%		
	Suburban	28.3%		
	Rural	30.9%		
	Size			
	Small	19.5%		
	Medium	28.2%		
	Large	26.8%		
	Very Large	25.6%		

Analytic Technique

Data were analyzed in this study in multiple stages. Exploratory data analysis was conducted to examine the general characteristics (e.g., descriptive statistics, normality, outliers, missingness) of the data. As noted, the purpose of this study was to investigate the effects of student engagement on Black male students' self-reported likelihood of transfer. Given that the outcome variable was categorical and that the respondents were nested within colleges, this study employed a multilevel, multinomial logistic regression procedure. Multilevel modeling is an advanced analytic technique that generates enhanced estimates and standard errors for data that are clustered within structures, in this case, students within colleges (Porter & Swing, 2006). Moreover, multilevel modeling allows for the examination of variables at the individual-level (Level 1) and the group-level (Level 2) to occur at each respective level in which they occur (Heck, Thomas, & Tabata, 2010). This is an important consideration, as Level 1 variables tend to exhibit greater dependency in nested structures. To examine this dependency, a first step in constructing a multilevel model is to determine whether there is significant proportion of variance in the outcome is a byproduct of the Level 2 (college) context. Thus, a null model was constructed to determine how likelihood of transfer varied between Level 2 units. These results are reported using Wald Z. It should be noted that the intra-class correlation coefficients (ICCs) for the null model were relatively small. An ICC ranges from 0 (fully independent) to 1 (fully dependent) (Cohen, Cohen, West, & Aiken, 2003). For the outcome 'likely', the ICC was .023 and for 'very likely' was .034. While small, prior research has shown that even an ICCC of .01 can lead to enhanced Type 1 error rates exceeding 5% if not without using multilevel modeling (Musca et al., 2011).

A Level 1 model was developed to determine whether the Level 1 engagement predictors and controls serve as valid predictors of students' self-reported transfer likelihood. After this, a model was developed which added college-level predictors and controls. In essence, this model employed predictors and controls at both Level 1 and Level 2. This model allowed for the researchers to ascertain the effect of the Level 1 and Level 2 engagement predictors on students' self-reported likelihood of transfer in isolation of college-level controls. The models were constructed using fixed-slopes with random intercepts. In addition, subsequent models were developed to investigate whether the Level 1 engagement predictor slopes differed across the nested structure. These models were developed using a random-slopes and random-intercepts approach. Engagement slopes illustrating significant between-group variation were then further analyzed using cross-level interactions to determine if college context variables (predictors and controls) had an effect on the slopes. This enabled the researchers to understand how certain college contexts influenced the effect of Level 1 engagement on students self-reported transfer likelihood. All models employed a post-stratification weight for enrollment type. Typically, CCSSE respondents are more likely to be full-time while the majority of community college students are less than full-time. This weight adjusted for response bias. Moreover, all tests of fixed effects and coefficients employed robust estimation techniques.

Limitations

This study had several limitations worthy of note. First, during exploratory data analysis, the researchers examined the data for missing values. Missing values are a common concern in secondary data analysis which can result in unreliable estimates and standard errors (Strayhorn, 2009). Of particular concern was the variable generation status which had missingness that exceeded that common threshold of five percent. A large percentage (32.1%) had missing data for this variable. Given that the variable was categorical (e.g., first-generation, not first-generation), the researchers elected to included missing data as an additional response category in the analysis.

Second, this study explored the effect of institutional context on the relationship between Level 1 predictors and the outcome. This was done using cross-level random-slope and random-intercepts models. However, there were a limited number of available variables relevant to institutional context beyond that of institutional size and urbanicity. As such, other relevant contextual factors (e.g., faculty characteristics, student demographics, faculty-student ratio) could

not be explored. Additional contextual factors could allow for greater explanatory relevance in understanding the relationship between the predictors and the outcome. Third, the outcome variable employed in this study was students' self-reported likelihood to transfer. While this provides insight into students own views of whether they will transfer, the researchers are unable to make directly connections between these viewpoints and actual transfer outcomes. With these limitations in mind, the researchers present the results from this study.

RESULTS

To begin, a null model was generated to determine whether there was sufficient between-college variability to support a multilevel model. The intercept for being 'likely' to transfer indicated that for students in an average college, the odds of being 'likely' to transfer as opposed to 'not likely' is 74.4% greater ($SE = .036$, $t = 15.257$, $p < .001$). The intercept for students in the average college indicated that the odds of being 'very likely' to transfer as opposed to being 'not likely' to transfer were 79.8% greater ($SE = .039$, $t = 15.140$, $p < .001$). The variance components indicated significant between college variance for students being 'likely' to transfer ($z = 3.494$, $SE = .022$, $p < .001$) and those being 'very likely' to transfer ($z = 4.704$, $SE = .025$, $p < .001$).

The next stage in the analysis included modeling the effect of the Level 1 predictors and controls on the outcome (see Table 2). With respect to the first outcome category, 'likely', four controls exhibited significance, they included respondents' age, total credits earned, grade point average, and time spent studying. The model indicated that younger students had greater odds of being 'likely' to transfer as opposed to 'not likely' ($OR = .902$, $p < .01$). Respondents with fewer credits earned also had greater odds of indicating that they were 'likely' to transfer ($OR = .913$, $p < .001$). Moreover, students with lower grade point averages ($OR = .938$, $p < .05$) and fewer hours spent studying per week ($OR = .905$, $p < .05$) had lower odds of reporting they were 'likely' to transfer. In terms of the Level 1 predictors, usage of student services was a significant negative predictor of being 'likely' to transfer ($OR = .911$, $p < .001$). In other words, lower use of student services resulted in a greater odds of a student indicating that they were 'likely' to transfer as opposed to being 'not likely' to transfer.

Table 2

Multilevel Model for Level 1 Variables on Likelihood to Transfer

Variable Name	Likely		Very Likely	
	Odds Ratio	*SE*	*Odds Ratio*	*SE*
Age	.902**	.034	.702***	.041
Credits Earned	.913***	.028	.959	.029
First Generation Status				
Missing	1.066	.091	.913	.094
First Generation	.864	.095	.796***	.097
Developmental Education				
Non-Developmental	.921	.085	1.112	.083
Grade Point Average	.938*	.031	1.027	.034
Hours Worked Per Week	.971	.021	.954*	.020
Time Studying	.905*	.040	.985	.039
Extra-Curricular Involvement	1.084	.045	1.106*	.044
Active and Collaborative Learning	.948	.102	1.027	.103
Faculty-Student Interaction	1.088	.100	1.072	.099
Exposure to Diversity	1.000	.018	1.070***	.020
Usage of Student Services	.911***	.020	.926***	.021
			Table 2 *continues*	

Secondary Goal			
Variance Components	.079		
Wald *Z*	3.012**		
Primary Goal			
Variance Components	.077		
Wald *Z*	2.996**		

Few similarities were found in the model for 'likely' and 'very likely' to transfer. For the latter, age served as a significant negative predictor of being 'very likely' to transfer (*OR* = .702, *p* < .001). In addition, first generation students had lower odds, by 20.4%, of indicating being 'very likely' to transfer in comparison to their non-first-generation counterparts (*OR* = .796, *p* <.001). The results also indicated that hours worked per week was negatively associated with being 'very likely' to transfer. As such, students who worked fewer hours had greater odds of transfer (*OR* =.954, *p* < .05). Moreover, the results also identified that extra-curricular involvement was associated with greater odds of being 'very likely' to transfer (*OR* = 1.106, *p* < .05). In terms of the Level 1 predictors, two variables were identified as having a significant effect on the outcome. As with the model for being 'likely' to transfer, usage of student services was negatively predictive of having greater odds of being 'very likely' to transfer (*OR* = .926, *p* <.001). Diverging from the 'likely' to transfer results, the odds of a student being 'very likely' to transfer were greater for those who had exposure to diversity (*OR* = 1.070, *p* < .001). Given this, diverse interactions seem to be beneficial for students' self-reported views of their own likelihood to transfer. The variance components continued to indicate significant between-group variation across colleges. This occurred both for the outcome of 'likely' (*z* = 3.012, *SE* =.026, *p* <.01) and 'very likely' (*z* = 2.996, *SE* =.026, *p* <.01).

The next model included predictors and controls from Level 1 and Level 2 (see Table 3). Hox (2010) has noted that when modeling categorical outcomes, adding Level 2 variables serves to rescale the model. As a result, it is important to note that readers should be cautious in making judgments about coefficients and variance components between models. In terms of the fixed effects, the coefficients were very similar between models. For the outcome of 'likely' to transfer, age, total credits earned, and grade point average were significant negative predictors. Usage of student services also served as a negative predictor of the outcome, meaning that greater levels of service usage were associated with lower odds of being 'likely' to transfer (*OR* = .908, *p* < .001). The results for being 'very likely' to transfer illustrated that age, being first generation, and hours worked per week were significant negative predictors of the outcome. Moreover, the odds of being 'very likely' as opposed to 'not likely' to transfer were greater for those students with higher levels of extracurricular involvement. In terms of the Level 1 engagement predictors, as with the prior model, exposure to diversity was identified as a significant positive predictor of the outcome (*OR* = 1.066, *p* <.001). As such, students who had more diversity interactions had a greater odds of indicating that they were 'very likely' to transfer. Greater levels of service usage was a negative predictor of the outcome, where higher usage resulted in lower odds of being 'very likely' to transfer (*OR* = .925, *p* <.001).

In terms of the college context variables, few variables for students who were either 'likely' or 'very likely' to transfer were significant. With regard to the prior, urbanicity indicated a significant effect of the outcome, where respondents in urban colleges and suburban colleges indicated greater odds of being 'likely' to transfer, by 39.8% and 31.2%, respectively. In terms of the outcome, 'very likely', the Level 2 variable for exposure to diversity indicated significance. The results indicated that students had greater odds of reporting that they were 'very likely' to transfer when attending colleges with higher scores for exposure to diversity (*OR* = 1.195, *p* < .05). Thus, taken together, students had a greater odds of being 'very likely' to transfer when they had exposure to diversity at the student level and attended colleges where greater exposure to diversity was taking place. Similar to the Level 1 model, the variance components indicated significant between-group variation across colleges for those who reported being 'likely' (*z* = 3.006, *SE* = .027, *p* < .01) and 'very likely' (*z* = 2.901, *SE* = .026, *p* < .01) to transfer.

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Table 3

Multilevel Model for Level 1 and Level 2 Variables on Likelihood to Transfer

Variable Name	Likely		Very Likely	
	Odds Ratio	*SE*	*Odds Ratio*	*SE*
Level 1				
Age	0.896***	.034	.696***	.041
Credits Earned	0.911***	.028	.955	.029
First Generation Status				
Missing	1.068	.091	.915	.094
First Generation	0.870	.094	.808*	.097
Developmental Education				
Non-Developmental	0.926	.085	1.121	.082
Grade Point Average	0.935*	.032	1.024	.034
Hours Worked Per Week	0.968	.021	.950*	.020
Time Studying	0.896**	.041	.974	.039
Extra-Curricular Involvement	1.094	.046	1.119*	.045
Active and Collaborative Learning	.904	0.904	.976	.106
Faculty-Student Interaction	1.120	.103	1.107	.102
Exposure to Diversity	0.997	.018	1.066***	.020
Usage of Student Services	0.908***	.021	.925***	.022
Level 2				
Active and Collaborative Learning	2.118	.407	2.173	.426
Faculty-Student Interaction	0.476	..475	0.614	.508
Exposure to Diversity	1.160	.101	1.195*	.088
Usage of Student Services	1.157	.100	1.064	.091
Institutional Size				
Small	1.181	.148	.867	.146
Medium	1.190	.118	1.056	.106
Large	1.168	.109	1.063	.109
Urbanicity				
Urban	1.398**	.107	1.234	.109
Suburban	1.312*	.108	1.174	.113
Secondary Goal				
Variance Components	.082			
Wald *Z*	3.006**			
Primary Goal				
Variance Components	.075			
Wald *Z*	2.901**			

Following the aforementioned analyses, the researchers' constructed random slope and random intercepts models to determine whether the effect of the Level 1 engagement predictors (e.g., active and collaborative learning, faculty-student interactions, exposure to diversity, and usage of student services) on the outcome varied between-college (see Table 4). Four random slopes were modeled for these predictors. In line with prior models, the intercepts for being 'likely' ($z = .2751$, $SE = .026$, $p < .01$) and 'very likely' ($z = 2.604$, $SE = .025$, $p < .01$) to transfer were significant. The variance components for campus services for being 'likely' to transfer indicated significant variation across colleges ($z = 1.745$, $SE = .004$, $p < .05$). This random slope for the effect of campus service on the outcome across college context was also significant for the outcome 'very likely' to transfer ($z = 2.355$, $SE = .01$, $p < .01$). Moreover, the random slope for exposure to campus diversity was also significant ($z = 2.448$, $SE = .004$, $p < .01$). Varying slopes

were investigated by constructing a model with cross-level interactions for exposure to diversity and usage of student services with Level 2 predictors and controls. As noted in the limitations section, there were a limited set of Level 2 variables to employ. Moreover, little explanation was derived from the cross-level interactions for exposure to diversity. However, for the 'very likely' outcome, the results indicated a significant cross-level effect for the Level 1 and Level 2 variables for usage of student services (OR =1.103, p <.05). Level 1 student service slopes are steeper in colleges with greater levels of usage of student services. As such, the distributional effects of service usage slopes on being 'very likely' to transfer are stronger at colleges with greater levels of usage of student services. Furthermore, the small colleges (OR =.874, p <.05) and large colleges (OR =.879, p <.05) had weaker slopes on being 'very likely' to transfer than very large institutions. The variance components for transfer as a primary goal continued to be significant (z = 7.569, SE =.003, p <.001).

Table 4

Estimates of Covariance Parameters for Level 1 Measures

Parameter	Estimate	SE	Z-test
Secondary Goal			
Intercept	0.072	0.026	2.751**
Active and Collaborative Learning	0.093	0.069	1.348
Faculty-Student Interaction	0.090	0.064	1.414
Exposure to Diversity	0.002	0.003	0.453
Usage of Student Services	0.007	0.004	1.745*
Primary Goal			
Intercept	0.065	0.025	2.604**
Active and Collaborative Learning	0.069	0.066	1.048
Faculty-Student Interaction	0.030	0.054	0.558
Exposure to Diversity	0.009	0.004	2.448**
Usage of Student Services	.0.12	0.005	2.355**

Note. Tests were one-tailed.

DISCUSSION

One of the findings of this study revealed that exposure to diversity greatly increased students odds of being 'very likely' to transfer. Specifically, Black males who had greater interactions with diverse peers had a greater perceived likelihood of transferring. Thus, the benefits of interacting with students who are diverse are apparent. Moreover, students who attended community colleges with greater aggregate exposure to diversity had increased odds of being 'very likely' to transfer into a four-year college or university. Indeed, extant research has shown that interaction with diverse peers not only facilitates student transition into college, but also it increases their sense of belonging (Locks, Hurtado, Bowman & Oseguera, 2008). Specifically, using structural equation modeling, Locks et al. found that interactions with diverse peers helped students (e.g., Asian American, Black, Hispanic, and White) transition into a public university and was inextricable to their sense of belonging on campus. While other research (e.g., Gurin, Dey, Hurtado & Gurin, 2002; Hurtado, 2003; Hurtado et al., 2007; Hurtado, Milem, Clayton-Pederson & Allen, 1999) found similar results, this study is particularly interesting given the institutional context of focus.

While the finding that diverse interactions increases the odds of self-reported likelihood of transferring for Black males in this study is interesting, data do not indicate the *quality* of the interaction that these men had with diverse peers at community colleges. Furthermore, the data do not reveal the space of the campus in which these interactions occurred (e.g. classroom or on

campus) and how they increased the Black males' perceived likelihood of transferring into a four year college or university. Having additional insight into these questions are critical because they may help facilitate the likelihood of transfer for Black male community college students.

Most research (e.g., Bush & Bush, 2010; Freeman & Huggans, 2009; Wood, 2012) has shown many students attending community colleges are nontraditional students with responsibilities outside their role of as students (e.g., working full-time or part-time, engaging in family activities). Given this, Tinto (1997) noted that community college students are less likely to be integrated into the campus milieu of these institutions. This point is particularly salient in light of this study's findings that extracurricular involvement resulted in greater odds of a student's perceived likelihood of transfer. However, this finding should also be viewed in light of prior research from Wood (2012) who illustrated using data from two national surveys that social involvement (as a whole) can have a negative effect on persistence for Black men in community colleges. It seems that this study's findings illustrate that predictors of persistence and likelihood to transfer can differ.

Another finding that emerged from this current study indicated that for Black male community college students, using campus services results in lower odds of being 'likely' or 'very likely' to transfer. This finding is both interesting and compelling because myriad research has emphasized the importance of students using campus services because it is a linchpin to their academic and social integration (Freeman & Huggans, 2009; Glenn, 2003-2004; Mason, 1998; Tinto, 1993; Wood & Williams, 2013). Academically, students have a better sense of the supportive services on campus and what specific service to access for their concern. Socially, students are able to have critical and meaningful interaction with administrators, faculty, staff, and peers. In fact, at community colleges, research has shown that using campus support services (e.g., academic advising) is critical for students who intend to transfer because they help to minimize transfer shock and ensure that students are enrolled in the appropriate courses (Wood et al., 2011). Specifically, Malcom (2010) argued that academic advisors are critical in the transfer process because they are aware of barriers community college students are likely to encounter as they transfer and can provide students with information to increase their success at four-year institutions. While future research is needed to further investigate this finding about how using campus services more could detract from Black males' likelihood of transferring, one possibility for this finding is that students who use these services more (particularly academic advising) might become increasingly aware of the expectations around transferring and become less likely to perceive it as attainable goal. Therefore, academic services may serve to clarify the reality of transfer for those with the goal of transfer.

RECOMMENDATIONS FOR PRACTICE AND FUTURE RESEARCH

In recognition of the aforementioned, recommendations for practice and future inquiry are extended. Clearly, diverse interactions lead to greater odds of perceived transfer likelihood. Therefore, college professionals should work to increase inter-group dialogue, understanding, and interactions. In particular, the college classroom can serve as a platform for diverse interactions. Faculty should consider how to use class discussions, small group work, and out-of-class activities to foster linkages with diverse peers. For example, rather than allowing students to select their own groups for assignments, faculty can purposively assign groups which will include individuals from diverse backgrounds. In doing so, faculty can structure group discourse to foster an expression of ideas which capitalize on diverse group makeups.

An additional finding was that extracurricular involvement resulted in greater perceived transfer likelihood. As such, college professionals should encourage student participation in campus clubs, organizations, and non-varsity sports. However, in doing so, professionals should be cautious in which extracurricular involvements are encouraged (see Wood & Williams, 2013). Preferably, academically oriented social involvement that exposure students to other students with transfer intent can be fostered. This can build an enclave of transfer-ready students who can then perform as a network of support at the community college to comprehend transfer policies,

articulation regulations, transfer services, and key institutional personnel. Additionally, for those who transfer to local institutions, their social ties can traverse institutional contexts, leading to smoother socio-cultural adjustments at four-year institutions.

This study found a negative relationship between service use and transfer. However, as noted, given the design of the construct for use of campus services, it is unclear which type of service use (e.g., academic advising, career counseling, tutoring, skills lab, and library) had the greatest influence on transfer likelihood. During exploratory data analysis, the linkage between academic advising and transfer likelihood was evident; however, service items were collapsed into one measure. Therefore, further studies should focus on different types of service use, satisfaction with those services, and perceived importance of services as individual predictors of transfer likelihood. This would provide a greater contextual understanding of the relative effect of differing services on transfer outcomes. Moreover, qualitative research can also be conducted to find out what messaging is occurring during student interactions with student service professionals that leads to lower odds of perceiving transfer as a 'likely' or 'very likely' outcome.

Given that this study found that exposure to diversity at the student- and college-level was a positive predictor of students who believed they were 'very likely' to transfer, future studies should investigate why this occurred. Specifically, while we postulate (in light of prior research) that greater diversity interactions increased students' sense of belonging and therefore their transfer intent, this conjecture must be explored. However, there are other non-cognitive outcomes that exposure to diversity may influence which have an effect on transfer likelihood. These could include, but are not limited to: self-efficacy, degree utility, intrinsic interest, perceptions of campus racial climate, locus of control, and self-concept. Thus, future work employing correlational and regression-based approaches can explore the linkages between exposure to diversity, non-cognitive outcomes, and transfer. Additionally, this study employed an expansive array of diverse interactions (e.g., race, religious, political, personal values). Possibly, some interaction-types have a greater influence on students perceive likelihood of transfer than others. As such, further research should parse of the effect of differing types of diverse interactions to determine which have the greater effect on transfer likelihood.

CONCLUSION

This article has found critical factors that may facilitate or hinder the likelihood of transfer for Black male community college students. While many Black men begin their postsecondary educational journey at these institutions, few actually transfer into four-year colleges and universities. Although these findings are compelling, some may warrant further investigation using a qualitative or mix methods approach. Despite this, this article provides important implications for ways that community college personnel could help to increase the likelihood of transfer for Black male students.

Appendix

Coding Schema for Control Variables

Respondent's Age	1 = less than 18 years old ; 2 = 18 to 24 years old; 3= 25 to 29 years old; 4 = 30 to 39 years old; 5 = 40 to 49 years old; 6 = 50 to 64 years old; and 7 = 65 years or older
Credits Earned	0 = none; 1 = 1 to 14 credits; 2 = 15 to 29 credits; 3 = 30 to 44 credits; 4 = 45 to 60 credits; 5 = 61 credits or more
Generation Status	1 = First Generation; 2 = Not First Generation
Developmental Education	1 = Non-Developmental; 2=Developmental
Grade Point Average	3 = C- or lower; 4 = C; 5 = B- to C+; 6 = B; 7= B+ to A-; 8 = A
Hours Worked Per Week	0 = did not work; 1 = 1 to 5 hours; 2 = 6 to 10 hours; 3 = 11 to 20 hours; 4 = 21 to 30 hours; 5 = more than 30 hours
Time Spent Studying	0 = none; 1 = 1 to 5 hours; 2 = 6 to 10 hours; 3 = 11 to 20 hours; 4 = 21 to 30 hours; 5 = more than 30 hours
Extracurricular Involvement	0 = none; 1 = 1 to 5 hours; 2 = 6 to 10 hours; 3 = 11 to 20 hours; 4 = 21 to 30 hours; 5 = more than 30 hours
Institutional Size	1 = small (less than 4,500 students); 2 = medium (4,500 to 7,999 students); 3 = large (8,000 to 14,999 students); 4 = very large (15,000 students or more)
Urbanicity	1 = urban serving; 2 = suburban serving; 3 = rural serving

Note. Respondent's age, credits earned, grade point average, hours worked per week, time spent studying, and extracurricular involvement were treated as continuous and grand mean centered with a mean of 0.

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