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Differences in GPA by Gender and Ethnicity/Race as a Function of First-Generation Status for Community College Students

Deshonta L. Holmes [α] & John R. Slate [σ]

Abstract- In this investigation, the degree to which GPAs might be different between first-generation and non-first-generation students by gender and ethnicity/race for community college students was addressed. Utilizing a 25% random sample of responses from the Community College Survey of Student Engagement (CCSSE), student success as a function of their gender and race/ethnicity was analyzed. Student success was statistically significantly different between first-generation and non-first-generation students by gender and by ethnicity/race. In all cases, GPAs were higher for non-first-generation students than for first-generation students. Implications of the results were discussed.

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I. Introduction

The 21st century brought about important changes within the workforce. In 1973, a high school diploma was all that was required for 72% of jobs nationally (Carnevale, Smith, & Strohl, 2010). Carnevale et al. (2010) projected that by 2018, 63% of jobs will require some type of college-experience. Due to low demand for less skilled workers, postsecondary education is essential. However, postsecondary access, success, and completion is an issue of importance for educators and administrators, particularly among underrepresented groups. The difference in a lifetime of poverty and a secure economic future is dependent upon obtaining a college degree or workforce training.

Enrollment of students from non-college educated families into postsecondary institutions has continued to rise (Capriccioso, 2006). Reported by the National Center for Education Statistics (2001) was that 54% of students whose parents graduated from high school enrolled in a college or university after finishing high school. This population is termed first-generation students. First-generation students are defined as "students from a family in which no parent or guardian has earned a baccalaureate degree" (Choy, 2001 p. 19).

First-generation college students differ from their non-first-generation counterparts. These students are less academically prepared for college and have lower reading, mathematics, and critical thinking skills than do non-first-generation students (Terenzini et al, 1996). Riehl (1994) determined that first-generation students scored lower on SAT and have lower GPAs when compared to non-first-generation students. This population also tends to come from lower socioeconomic families, have lower educational aspirations (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996), and typically obtain lower grades than their counterparts (Chen, 2005). In addition, first-generation students lack familial support in regard to college experience.

Although approximately 34% of freshman enrolled in colleges and universities are first-generation students only 73% of these students return in the second year (Stuber, 2011). Not only is it important that first-generation students enroll in higher education, but it is imperative that they are successful while enrolled so that they obtain their degrees. Though well documented in the research literature (e.g., Forbus etal., 2011; Pascarella et al., 2003) that differences exist among first-generation students and their counterparts, only limited research is available regarding GPA differences by gender and ethnicity/race in first-generation students in community colleges.

a) College Readiness of First-Generation Students

Byrd and Macdonald (2005) conducted a qualitative college readiness study of 8 first-generation college students. Participants were over the age of 25 and had obtained an associate degree from a community college before transferring to a university.

During the interviews with each student, the authors gathered data about the participants' background and experience as college students. Several themes emerged as a result of these interviews, which were grouped into three categories: skills and abilities, background factors and life experience, and the nontraditional concept. An important finding was that students contributed their success in college to their life experiences. Having worked on a job and being older allowed them to be more focused on their goals, which resulted in better time management skills and self-advocacy.

Another qualitative investigation was conducted by Reid and Moore (2008) on college-readiness for first-generation college students. Their sample consisted of 13 Black or immigrant students who were economically disadvantaged and who had graduated from the same

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high school. Reid and Moore (2008) focused on the perceptions of these students' preparation for postsecondary education. One important finding was the value of relationships students had with their teachers, counselors, and administrators. Students attributed these close connections as essential to their decision to attend college. Another finding was that students believed their high school English course prepared them for college, but were underprepared in mathematics and science.

In a recent study, Atherton (2014) examined the academic preparedness of first-generation students. Data were obtained from 6,280 students at a public, 4-year university who participated in the Cooperative Institutional Research Program survey from 1999-2009. Mathematics and verbal SAT scores were used to measure academic preparedness between first-generation students and non-first-generation students.

Non-first-generation students who came from families where both parents attended college had SAT verbal scores 48% higher than first-generation students (Atherton 2014).Non-first-generation students who came from families where one parent attended college had scores 32% higher. On the mathematics portion of the SAT, students from families where both parents attended college scored 38% higher whereas students from families where one-parent attended college scored 30% higher than first-generation students. Atherton concluded that evidence continues to support the idea that first-generation students exhibit lower academic preparedness for college.

b) Academic Performance of First-Generation Students

DeFritas and Rinn (2013) conducted a study to examine if academic performance of first-generation students was related to verbal and mathematics self-concepts. Participants were 167 ethnically diverse first-generation students enrolled at a 4-year university. Students with lower self-concepts also had lower GPAs. As reported in similar research by Masewicz and Vogul (2010), ethnic/racial differences were present with White students outperforming both Black and Hispanic students.

An important factor in student learning and outcomes is student engagement (Pascarella & Terenzini, 2005). Soria and Stebleton (2012) investigated differences in academic engagement and retention between first-generation and non-first-generation students. The Student Experience in the Research University survey was administered to 28,237 first year students with only 1864 students responding. It was noted that most of the first-generation students were students of color, came from a working class family, and were low income. The authors concluded that first-generation students were associated with a 45% decrease in odds of reenrolling the second year. Additionally, it was noted that first-generation students exhibited lower academic engagement during their first year.

Aspelmeier, Love, McGill, Elliott, and Pierce (2012) investigated the role of generational status on psychological factors (i.e., self-esteem and locus of control) and college outcomes (i.e., college adjustment and GPA). Participants were undergraduate students at a 4-year university and a majority were females. No statistically significant gender differences were present for GPA, however, statistically significant results were reported for generational status. The association with GPA and self-esteem was large among non-first-generation students than first-generation students. Aspelmeier et al. (2012) concluded that self-esteem was a good predictor of college adjustment and a modest predictor of higher self-reported GPA. In addition, internal locus of control was associated with better college adjustment and moderately associated with higher GPA. External locus of control was associated with lower college adjustment and slightly associated with lower reported GPA.

II. Statement of the Problem

Carey (2004) stated that "Higher education, and the promise it represents, has long been one of the main drivers of opportunity, social mobility and economic progress" (p. 1). The difference in a lifetime of poverty and a secure economic future is dependent upon obtaining a college degree or workforce training. Other benefits are gained from a college-education, which include improved working conditions, better quality of life, and job security. Increased earnings are typically associated with higher levels of education (Day & New burger, 2002).Postsecondary enrollment and completion is an issue of importance for educators and administrators, particularly for underrepresented groups. As such, research is warranted into variables that might be related to student completion of a postsecondary degree.

III. Significance of the Study

The significance of this research study is to determine the degree to which differences might be present in the GPAs of first-generation and non-first-generation community college students by their gender and ethnicity/race. A considerable body of research is available about differences in academic performance and motivation of first-generation students when compared to their peers. Investigating differences in GPA of first-generation and non-first-generation students by their gender and ethnicity/race has the potential of assisting postsecondary education administrators and faculty in understanding and implementing programs or interventions that focus on each specific student demographic.

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IV. Purpose of the Study

The purpose of this study was to examine the extent to which differences were present in the GPAs of first-generation community college students by gender and ethnicity/race(i.e., White, Hispanic, and Black). Results from this empirical investigation may be informative tohigher education administrators regarding the presence of any achievement gaps present between first-generation and non-first-generation community college students. Furthermore, administrators can use this information in the planning process of student success programs to aid in college completion rates of first-generation students.

V. Research Questions

The following research questions were addressed in this study: (a) What is the difference in GPA as a function of first-generation status for males? (b) What is the difference in GPA as a function of first-generation status for females? (c) What is the difference in GPA as a function of first-generation status for Black students? (d) What is the difference in GPA as a function of first-generation status for White students? and (e) What is the difference in GPA as a function of first-generation status for Hispanic students?

VI. Method

a) Participants

Participants in this study were returning community college students who participated in the 2014 Community College Survey of Student Engagement (CCSSE) survey. The total number of participants was 36,068 students; however, invalid responses were coded as missing and, therefore, were not analyzed. In summary, the total number of students analyzed for differences in GPA was 10,365 first-generation students and 25,703 non-first-generation students.

VII. Instrumentation and Procedures

Data for this study came from the CCSSE survey. The survey is administered annually to students at participating community colleges. The data from participating community colleges were requested and obtained directly from the Center for Community College Student Engagement and then imported into the Statistical Package for Social Sciences (SPSS) software program. After the CCSSE data file was converted into a SPSS data file, labels were given to relevant variables used in this investigation. Because data were obtained directly from the Center for Community College Student Engagement, minimal errors in the data are assumed to be present.

VIII. Definition of Terms

The focus of this study is differences in GPA of first-generation community college students. *First generation* is a term that refers to students in which neither parent as obtained a bachelor's degree (Choy, 2001). These students are not always low-income individuals, and not always considered at-risk. Grade point averages (GPAs) are used by education institutions to summarize overall academic performance. In this study, GPAs were recorded from an interval scale into 4 categorical groups: highly successful, successful, moderately successful, and not successful. Highly success full abel refers to a grade of A. Successful label refers to grades that fall within a range of A- to B. Moderately successful label refers to grades that fall with a range of B- to C. Not successful label refers to grades that range from C- or below.

IX. Results

To ascertain whether a difference was present in GPA as a function of first-generation status, Pearson chi-square were conducted. This statistical procedure was selected as the preferred statistical procedure because (a) frequency data were present for all variables, (b) all variables were categorical, and (c) the large sample size provided for a per cell size of greater than five (Slate & Rojas-Le Bouef, 2011).For the first research question regarding GPAs of first-generation and non-first-generation male students, the result was statistically significant, $\chi^2(3) = 27.32, p < .001$. The effect size for this finding, Cramer's V, was below small, .028 (Cohen, 1988). As can be seen in Table 1, differences were present between first-generation and non-first-generation status for successful and not successful male students. For highly successful and moderately successful students, a 1.5% and 2.2% points respectively, were present between first-generation and non-first-generation male students.

Regarding the second research question on the GPAs of first-generation and non-first-generation female students, the result was statistically significant, χ^2 (3) = 194.69, $p < .001$. The effect size, Cramer's V, was below small, .065 (Cohen, 1988). As indicated in Table 1, differences were present between first-generation and non-first-generation status for successful and not successful female students. For highly successful and moderately successful students, non-first-generation students had a 4% higher success rate than first-generation female students.

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Table 1: Frequencies and Percentages of Male and Female Students' GPA as a Function of First Generation Status

Gender by GPA	First Generation %	*n*	Non-First Generation %	*n*
Male Students				
Highly Successful	14.40%	1,492	15.90%	4,092
Successful	55.10%	5,713	56.00%	14,398
Moderately Successful	28.10%	2,917	25.90%	6,649
Not Successful	2.30%	243	2.20%	564
Female Students				
Highly Successful	15.70%	2,535	19.70%	5,890
Successful	56.70%	9,169	57.50%	17,176
Moderately Successful	25.70%	4,153	21.30%	6,357
Not Successful	2.00%	319	1.60%	464

For the third research question on GPAs of first-generation and non-first-generation Black students, the result was not statistically significant, $\chi^2(3) = 0.83$, $p = .84$. The effect size, Cramer's V, was below small, .01 (Cohen, 1988). Readers are directed to Table 2 for the frequencies and percentages of Black students' GPA as a function of first-generation status. For the fourth research question regarding GPAs of first-generation and non-first-generation White students, the result was statistically significant, $\chi^2(3) = 8.49$, $p = .037$. The effect size for this finding, Cramer's V, was below small, .013 (Cohen, 1988). As indicated in Table 2, differences were present between first-generation and non-first-generation status for highly successful, successful, and moderately successful students. For highly successful and successful students, non-first-generation students had a 3% and 1% higher success rate than first-generation students.

Regarding the research question on the GPAs of first-generation and non-first-generation Hispanic students, the result was statistically significant, $\chi^2(3) = 60.04$, $p < .001$. The effect size for this finding, Cramer's V, was below small, .07 (Cohen, 1988). As seen in Table 2, non-first-generation Hispanic students had a 3.7% higher highly successful GPA and 4.8% moderately successful GPA than first-generation Hispanic students.

Table 2: Frequencies and Percentages of Students' GPA by Ethnicity/Race as a Function of First Generation Status

Ethnicity/Race by GPA	First Generation %	*n*	Non-First Generation %	*n*
Black Students				
Highly Successful	8.10%	261	8.10%	444
Successful	50.10%	1,623	50.70%	2,777
Moderately Successful	37.80%	1,224	37.60%	2,058
Not Successful	4.00%	129	3.60%	199
White Students				
Highly Successful	19.30%	2,629	20.10%	7,519
Successful	57.60%	7,828	57.80%	21,612
Moderately Successful	21.70%	2,956	20.70%	7,742
Not Successful	1.40%	184	1.40%	531
Hispanic Students				
Highly Successful	9.10%	607	12.80%	710
Successful	55.40%	3,676	56.60%	3,152
Moderately Successful	32.80%	2,175	28.00%	1,558
Not Successful	2.70%	177	2.60%	145

X. Discussion

In this study, differences in GPA by gender and ethnicity/race as a function of first-generation status were examined for community college students. Being a first-generation student was statistically significantly related to student GPA. That is, first-generation community college students had statistically significantly lower GPAs than did non-first-generation community college students. With reference to student ethnicity/ race , first- generation White and Hispanic community college students had statistically significantly lower GPAs than did non-first-generation White and Hispanic community college students. Interestingly, statistically significant differences were not present in GPAs between Black first-generation and Black non-first-generation community college students.

First- generation students are enrolling in postsecondary institutions at high rates (Capriccioso, 2006). Unfortunately, many of these first-generation, along with many non-first-generation, college students

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do not have the college-readiness skills to be successful in their postsecondary experience (Barnes & Slate, 2014; Atherton, 2014; Reid & Moore, 2008). Also present are achievement gaps between male and female students as well as among ethnic/racial groups. As such, programs are needed in which support can be provided to students who enter postsecondary settings without the requisite skills to be successful.

No attempt was made in this study to examine differences in gender among ethnicity/race. As such, this issue should be explored in further studies, specifically among Black students. This additional research will assist policy makers and educators in developing a deeper understanding of the disparities that occur within this population of students. A second recommendation is to expand the study across multiple years. Given this study was limited to one year of date, the extent to which these results are generalizable are unknown. A multi-year study would improve the generalizability of this study.

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