Journal of
Multicultural, Gender and Minority Studies
Volume 3, Issue 1, 2009

Predictors that Distinguish First-Generation College Students from Non-First Generation College Students

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Abstract

The purpose of the study was to compare a freshman cohort of first and non first-generation college students enrolled in an urban university and to identify characteristics that distinguish the two groups in terms of selected demographics, pre-college behaviors and beliefs (expectations and personal traits). Some of the distinguishing characteristics such as household income were common across race/ethnicity, but there were differences in types and in relative importance of the characteristics between White students and students of color and among various ethnicity groups. Policy implications of the findings are discussed.

Introduction

At the turn of the 20th century, the majority of college students were white male adolescents, primarily the sons of doctors, lawyers, ministers, prosperous merchants, and well-to-do farmers (London, 2000). With notable exceptions, during this time frame, females and minorities who attended college were enrolled in normal schools where they studied to become teachers.

Today, the contemporary college student is, statistically speaking, no longer upper middle class, adolescent, white, or male; instead, the proportion of working-class and minority students pursuing higher education has increased dramatically. It is now commonplace to see older students in college and women undergraduates outnumber men (London, 2000).

As the middle-class population of the United States continues to grow and more students from this diverse segment of society enter private and public colleges and universities, their enrollment must by its very nature impact higher education. For instance, private and public colleges and universities in rural areas, where racial diversity can be limited, may experience a greater challenge with the task of educating a more diverse student population. In many cases, this growing population of students consists of first-generation college students and students from different racial and ethnic backgrounds. As more Black, Hispanic and Asian students entered higher education, researchers began to investigate the role of race on students' educational experiences (Cokley, 1999; Jackson, 1998; Nisson, Paul, Lupini, & Tatem, 1999; Torres, 1999).

Regretfully, many first-generation college students are somewhat skeptical about the opportunities associated with college (Richardson & Skinner, 2000). Often, such students come from communities and backgrounds where they are told horror stories about college. These stories heighten their anxiety about the pitfalls associated with being a minority in a higher-education setting (Richardson & Skinner, 2000). For example, many first-generation college students are told that college will not erase the fact that they are minorities, that they will not be able to find jobs, and that a college education can do nothing for them (Richardson & Skinner, 2000). Despite the anxieties raised by such stories, perhaps the greatest pitfall facing first-generation college students of color is their lack of preparation. Simply put, many first-generation college students of color enter college with inadequate academic preparation. This is largely due to the fact that many such students do not take the sort of high school classes that prepare them appropriately for the rigors of college. As a result, more college and university officials have begun to designate resources and personnel for support services that address the needs of these students. However, before college and university officials can implement effective and efficient structures to support and help students become academically successful, they need additional data and a clearer portrait of this population (Edwards, 1993; Levine, 1993).

The purpose of the study was to compare a freshman cohort of first and non first-generation college students enrolled in an urban university and to identify characteristics that distinguish the two groups with respect to selected demographics, pre-college behaviors and beliefs (expectations and personal traits).

Methods

Sample and Instrument

Data for this study came from a medium-size degree-granting urban comprehensive university in the Midwest that offers 23 undergraduate and 15 graduate and professional degree programs, where students of color comprise more than 54% of the student body.

The Annual Freshman Survey (AFS) was used to gather crucial information about demographic characteristics, pre-college behaviors, and beliefs regarding higher education of entering freshmen. The AFS, is a survey instrument created by researchers at the Cooperative Institutional Research Program (CIRP), located at the University of California at Los Angeles (UCLA). The AFS questionnaire, which was first administered to colleges and universities in 1966, is the most widely-used instrument in the United States for gathering data on entering freshmen (Cooperative Institutional Research Program, 1999). The AFS consists of more than 200 items and is divided into three sections by contents.

The first section asks about the student's demographics such as gender, race/ethnicity, age, household income, etc. The second section consists mostly of a set of Likert-type items that concern the student's pre-college behaviors such as whether the student asked teacher for advice, whether the student enrolled in advanced courses, whether the student had/needed remedial academic works, how much the student did homework or studied a week on average, whether parents wanted the student to attend college, whether the student used the internet for research or homework, whether the student did volunteer works in high school, etc. The third section includes a set of Likert-type items that concern students' personal traits and expectations such as academic ability, mathematical ability, writing ability, computer ability, level of self-confidence, level of leadership ability, chance of graduating with bachelor's degree, chance of making at least a "B" grade, chance of changing major field, chance of communicating regularly with professors, chance of joining a social fraternity or sorority, chance of working full-time, etc.

With respect to the validity of the AFS, the developers focused on content validity. Content validity was established through use of an expert panel who reviewed each item on the survey, comparing them to domains of interest that had been established from the literature. A threshold of .90 was used for item inclusion. This meant that 90% of the panel needed to agree that this was a good item. The panelists were familiar with the constructs of the survey measure. Experts were researchers and educators within the field of higher education (CIRP, 1999). Based on the theory and literature in the field, 60 items were selected that seemed relevant to the purpose of the current study and used them in the analysis.

Participants

Of the 2004 freshman class enrollment, totaling 956, 409 completed the AFS survey. A total of 194 students provided useable data. Of those, 123 (63.4%) students were classified as First Generation College Student (FGCS) and the other 71 (36.6%) students were classified as Non First-Generation College Student (NFGCS) according to the criteria based on the educational level of the student's parent(s). The majority of these respondents were female (*n*=132, 68%) as compared to male (*n*=62, 32%). More than half of the respondents were Hispanic (*n*=98, 50.5%). Whites (*n*=48, 24.7%) comprised the next largest group of respondents followed by Asian/Pacific Islanders (*n*=31, 16%) and Blacks (*n*=17, 8.8%).

According to the National Center for Education Statistics (NCES) (2001), among students in all U.S. postsecondary institutions, women comprised 56% of undergraduates in 1999-2000. In the present study, women comprised 68% of the participants. According to the NCES, minority students represented about one-third of the total undergraduate population; 12% Black, 11% Hispanic, and 5% Asian. In the present study, slightly more than 50% of the participants identified themselves as Hispanic and 75.3% of participants were a racial or ethnic minority group. It is important to note that the sample used for this study was disproportionately Hispanic; thus racial and ethnic make-up of this study was not representative of the general college population. It is also interesting to note that the sample's socioeconomic status mirrored those reported by the Social Science Data Analysis Network. In the United States the median income of 93,196,000 White households in 2003 was $45,572. The median income of 13,696,000 Black households was $29,689, and that of 11,693,000 Hispanic households was $32,997 (Social Science Data Analysis Network (SSDN), 2004). In the present study White students reported a median income between $40,000 and $49,999. The median income for Asians and Blacks ranged between $25,000 and $29,999, and that of Hispanics about $30,000.

Data Analysis

Chi-square analysis was the primary statistical procedure used in this study because the dependent variable of interest, which is the generation status, was categorical (a binary variable and the two categories are whether a respondent student is the first generation college student or the non-first generation college student), and all of the interested independent variables were also categorical. Further, since the study contained several independent variables, a series of chi-square analyses was conducted to help identify a list of statistically significant variables.

In preparation for data analysis, generation status (i.e., whether the student is the first generation college student or not) was assigned to each student. Steps involved in assigning the status were as follows: respondents were asked to report their mother or father's highest level of education - *grammar school or less, some high school, high school graduate, postsecondary school other than college, some college, college degree, some graduate school*, or *graduate degree*. Those who reported that one parent had at least some college experience were assigned to the non-first-generation group. Those who responded that their parent(s) had no college experience were assigned to the first-generation group; hence the dependent variable was established. Thus, the outcome variable that indicated for FGCS status was named as *dFGCS* and took a value of 1 if the student was FGCS and 0 if the student was non-FGCS. Note that since the generation status variable mirrored parent's education levels, level of education was not included as an independent variable in the analyses of this study. Similarly, student's gender was represented as the female indicator, *dfemale,* which took the value of 1 if the student was female and 0 if the student was male. The *Race_ethn* variable represented the student race/ethnicity and had four categories (1 = White, 2 = Blacks, 3 = Hispanics, 4 = Asians). *Income* (Household income), *Numapply* (Number of applications submitted colleges and universities), and *HSGPA* (high school GPA) were reported as ordinal categorical variables and the higher value represented more quantity for that attribute. All other variables appeared in the table were Likert scale variables that represent either student's pre-college behaviors or student's beliefs regarding their personal traits and expectations. The higher value in these variables indicated higher attribute for that characteristic that student marked.

Chi-square analysis allowed us to determine whether there were significant differences in proportions between first-generation and non first-generation students on the selected demographic, pre-college and belief variables. In addition, the Cramer's phi coefficient for each variable was obtained. The Cramer's phi coefficient represents the effect size measures of strength of association between two categorical variables and thus can be used as an index of substantive importance of the relationship, as opposed to the chi-square statistic used for determining the statistical significance. According to Cohen's (1988) suggestion for interpreting Cramer's phi coefficient, a measure of strength of association is interpreted as: .10 < phi < .30 = small effect size, .30 < phi < .50 = medium effect size and phi > .50 = large effect size. By rank ordering the Cramer's phi coefficients by the descending order, the relative substantive importance of the variable was able to be determined compared to other statistically significant variables.

Results

Table 1 lists the significant variables that distinguished FGCS and NFGCS by three classification schemes (overall, by race and by ethnicity). All the variables listed in the table were statistically significantly associated with the FGCS status except *Hpw0111* (reading for pleasure) at .10 level of significance. This variable was listed in the table because its value of Cramer's phi was larger than some of the statistically significant variables, meaning that it was substantively significant, even though it was not statistically significant.

Table 1. Summary Table – Significant Variables that Distinguish FGCS and NFGCS by Each Classification

Overall Sample		Subgroups by Race						Subgroups by Ethnicity					
(N =179-194)		White (N = 42-48)		Non-White (N = 137-166)		Blacks (N =17)		Hispanics (N = 97-98)		Asians (N = 29-31)	
Variable	Cramer's phi	Variable	Cramer's phi	Variable	Cramer's phi	Variable	Cramer's phi	Variable	Cramer's phi	Variable	Cramer's phi
Numapply (-)	.314	Income (-)	.621	Hpw0106 (+*)	.380	Hpw0101 (+)	.814	Hpw0106 (+*)	.402	Hpw0106 (-)	.663
Income (-)	.312	Act0110 (+)	.465	Income (-)	.359	Reason01 (+)	.772	Hadrem1 (-)	.289	HSGPA (-)	.633
Race_ethn (*)	.273	Numapply (-)	.443	Numapply (-*)	.329	Act0112 (-)	.660	Hpw0111 (+)	.278	Act0111 (-)	.560
Hpw0106 (+)	.260	Futact03 (-)	.409	Rate0103 (-)	.251	Hpw0111 (+)	.568	Hadrem7 (-)	.226	Act0118 (-)	.556
Rate0103 (-)	.239	Act0111 (+)	.383	Hpw0111 (+)	.238	Act0119 (-)	.540	Needrem4 (+)	.191	Act0110 (-)	.528
Hpw0111 (+)	.215	Goal0103 (+)	.383	Needrem4 (+)	.190	Hadrem3 (-)	.436	Dfemale (+)	.173	Act0126 (-)	.495
Needrem4 (+)	.171	Futact11 (+)	.372	Act0112 (-)	.189	-		-		Futacto09 (-)	.471
Act0114 (-)	.165	Reason05 (+)	.359	Reason01 (-)	.188	-		-		Futact01 (-)	.456
Act0128 (-*)	.160	Act0119 (-)	.318	Act0118 (-)	.186	-		-		Act0124 (-)	.429
Dfemale (+)	.122	-		Hardrem1 (-)	.184	-		-		Needrem1 (+)	.423
-		-		Dfemale (+)	.153	-		-		Act0114 (-*)	.396
-		-		-		-		-		Needrem2 (+*)	.367
-		-		-		-		-		Hpw0111 (+)	.360

Note 1. Dfemale-female; Race_ethn-Student's race; Income-household income; Numapply-number of applications submitted to colleges and universities; Act0110-felt overwhelmed; Act0111-felt depressed; Act0112-performed volunteer work; Act0114-asked teacher for advice; Act0118-socialized w/diff ethnic group; Act0119-came to class late; Act0124-used internet for research; Act0126-other internet use; Act0128-used personal computer; Rate0103-rate computer skills; Hpw0101-study/homework; Hpw0106-working for pay;Hpw0111-reading for pleasure; Hadrem1-had remedial English; Hadrem3-had remedial Math; Hadrem7-had remedial writing; Needrem1-need remedial English; Needrem2-need remedial reading; Needrem4-need remedial social studies; Reason01-parents want me to go to colleges; Reason05-gain a general education; Goal0103-recognition from colleagues; HSGPA-high school grade point average; and Futact01-change major field of study; Futact03-graduate with honors; Futact09-make at least "B" average; Futact11-get bachelor degree.

Note 2. The symbols in the parenthesis after the variable name such as (+), (-), (+*), (-*), and (*) show either the direction of association or the pattern of association. The symbol (+) indicates that FGCS had more proportions on higher valued category than Non FGCS and the symbol (-) indicates the opposite direction. The symbol (+*) indicates that the main pattern is that there are more proportions in the two extreme categories for FGCS group than non-FGCS group, though there is a tendency that FGCS students tend to have more proportions in the higher value categories. The symbol (-*) indicates the opposite of (+*). The symbol (*) was used only for *race_ethn*, a nominal categorical variable. The more detailed descriptions for these symbols appeared in the text.

Further, to understand the relative substantive importance of the variables, the variables in the table were listed by the order of the strength of association represented by Cramer's phi coefficient within each classification scheme. This presentation allowed researchers to identify which characteristic was more substantively important than others to distinguishing between first and non first-generation groups.

The nature (direction or pattern) of the association was indicated by using the symbols (+), (-), (+*), (-*), and (*).The symbol (+) indicates that the FGCS groups tended to have more proportions on the higher value categories in the variable of interest. For example, the variable Hpw0106 (working for pay) that has this symbol in the Overall Sample column means that more FGCS students reported that they worked more hours for pay than the non-FGCS students. The symbol (-) indicates the opposite direction. The symbol (+*) indicates that although there was a slight tendency that the FGCS students have more proportion in the higher value categories in the variable of interest, the main nature of the association was that there were more proportions in the two extreme categories than the non-FGCS peers. For example, the variable Hpw0106 that has this symbol in the Hispanics column means that for Hispanics group, the FGCS students tended to work more for pay than the non-FGCS peers in general, but the main characteristics of the association was that the Hispanic FGCS students tended to have more proportions in the two extreme categories such as "never worked" and "More than 20 hours a week." The (-*) symbol indicates the opposite association, i.e., the FGCS students tended to more proportions in the lower values for the variable of interest in general, but the main feature of the distribution of the proportions was that there were more proportions in the two extreme categories than the non-FGCS peers. The last symbol (*) is only applicable to the Race_ethn, race/ethnicity variable that has four categories. Since this variable is a nominal scale, the pattern of the distribution was described. That is, by (*), it was meant that the race/ethnicity distributions were not equal between FGCS and non-FGCS groups. Specifically, the FGCS group had more proportions of Hispanic students and fewer proportions of Black and Asian students than non-FGCS group. Finally, it was noted that the sample size (*N*) slightly varied within each classified group depending on the available cases for the independent variable. For example, in the Overall sample group (the first column in Table 1), 194 cases were available for the gender (*Dfemale*), but only 179 cases for the household income (*Income*).

As shown in Table 1, for Whites, income (.621) was the most distinguishing factor between first and non first-generation groups where the first generation group tended to have less household income than the non first-generation group. However, with regard to Non-White (i.e., students of color that include Black, Hispanic and Asian), working for pay (*Hpw0106*) (.380) was the most important factor that distinguished between first and non first-generation students and the first generation college students (FGCS) tended to work more for pay than the non-FGCS.

Table 1 also highlights the variables that distinguished FGCS and non FGCS, separately by ethnicity (i.e., Blacks, Hispanics, and Asians). For Blacks, studying and/or doing homework (*Hpw0101*) (.814) was the most distinguishing factor between first and non first-generation students and FGCS tended to study more and/or did homework more than the non-FGCS. However, for both Hispanic and Asian students, working for pay (*Hpw0106*) (.402) was the most important factor that distinguished first and non first-generation groups. With regards to Hispanic students, first-generation students were more likely to work during college on average in general, but the main pattern was that there were more proportions of Hispanic students who were in the two extreme categories. That is, there are high proportions of Hispanic students who worked more than 20 hours a week and who did not work at all for pay. For Asian first-generation college students, they tended to work less for money than non first-generation peers.

In the following, the major distinguishing factors that are relevant to the policy issues were summarized by extracting information from in Table 1:

1. The FGCS household income (*income*) is lower than non-FGCS (overall sample, white, and Non-white (i.e., students of color) groups).

2. FGCS students work more for pay (*Hpw0106*) than non-FGCS peers (Overall sample, Non-white, Blacks, and Hispanics groups). For Asians, the pattern is reversed.

3. FGCS students tend to give lower rating of their computer skills (*Rate0103*) than non-FGCS peers (Overall sample and Non-white groups).

4. FGCS students feel that they will need more remedial work on social studies (*Needrem*4) than non-FGCS peers (Non-white and Hispanic group).

5. FGCS students tend to do less volunteer work (*Act0112*) than non-FGCS peers (Non-white and Black groups).

6. FGCS students tend to socialize less with different ethnic groups (*Act0118*) than non-FGCS peers (Non-white, Black, and Asian groups).

The first two items 1 and 2 are related to the financial issues. Except for the Asian group, the FGCS students come from lower income households and thus they need to work more for pay than non-FGCS peers. Items 3 and 4 are issues in confidence in academic ability and readiness to succeed. FGCS students tend to have less confidence than their non-FGCS peers. Items 5 and 6 are related to the issues in socialization. Students of color, especially Blacks and Asians, tended to do less socialization than non-FGCS peers.

In addition to the financial issues and issues concerning academic preparedness and self-confidence, asking teachers for help less frequently (*Act0114*) was found to be another behavioral characteristic of FGCS common across all race/ethnicity groups. It is also likely that FGCS students are less likely to contact and/or seek help from faculty members and university support staffs.

There is another interesting difference between White and non-white groups in factors that distinguished FGCS and non-FGCS groups. White FGCS students expressed more often that they felt overwhelmed by all they had to do (*Act0110*) or felt depressed (*Act0111*) during the past year than the non-FGCS peers, but non-White FGCS students showed no difference on these issues from the non-FGCS peers. Instead, they mentioned that they performed less volunteer work (*Act0112*) and socialized less with different ethnic groups (*Act0118*).

Finally, it should be noted that reading for pleasure (*Hpw0111*) was not shown to be a statistically significant association, but appeared to be a substantively important variable in the overall sample, in the non-White (i.e., students of color) subgroup, and in any subgroups classified by ethnicity status, such as Black, Hispanic and Asian. The relatively large effect size measured by Cramer's Phi, compared to other statistically significant variables, indicated that the variable should not be ignored when considering distinguishing characteristics of generation status.

Discussion

Early intervention has proven to be important and crucial in the success of first-generation college students. Students who attend institutions where college administrators and faculty understand their needs and have in place services and programs aimed at addressing those needs are more successful (York-Anderson & Bowman, 1991). For these purposes, the current study offers some hints on developing and implementing effective early intervention strategies.

First, the current study found that the financial problems faced by FGCS were one of the most important factors that distinguished FGCS and non-FGCS. Policy makers managing financial aid may want to take note of the fact that FGCS household income was significantly lower than non -FGCS. Greater proportions of first-generation students also reported they work more than 20 hours per week. This may have an impact on first-generation students' academic performance, retention, graduation rates, etc. Financial aid officers may want to consider developing a policy that would allocate grants and scholarships to first-generation students who demonstrate significant financial need. Moreover, policy makers may wish to consider tuition waivers that are linked to generational status based on need – some Ivy League and historically Black college and university administrators are currently doing so (Waston, Terrel, & Wright, 2002). In addition, student affairs administrators can work with directors of financial aid offices to develop need-base scholarships and matching grant programs for first-generation students. Beyond the campus, these findings provide useful information for college and university administrators to lobby state legislators for additional aid and financial support for this subgroup.

It was also found from the current study that FGCS generally do not ask questions and/or seek help from faculty members and support staffs, white FGCS are more likely to have been overwhelmed and/or depressed during the last year in high schools, and FGCS of color are less confident in their academic ability and readiness for higher education. In an effort to help address the academic preparation needs of some first-generation students, many colleges and high schools have developed partnerships that have allowed high school students the opportunity to enroll in college courses on their campus while in high school. Such opportunities provide students a realistic experience of college academic life while earning college credits. For first-generation students, involvement in such programs could serve as a catalyst to help build self-confidence that may lead to more frequent interaction with faculty and other higher education personnel. Other areas to focus on are faculty to student ratios, mentorship programs, and environments that are supportive, welcoming and nurturing. In a study conducted by Watson et al. (2002), students of color reported that smaller class sizes, which increased student-to-faculty interactions, were more desirable. They also reported that institutional characteristics (i.e., campus size, the visibility of multicultural elements) helped to create an environment that students felt supported their needs and welcomed their culture. Administrators and faculty members at many historically Black colleges and universities, as well as liberal arts colleges have been successful in helping many first-generation college students succeed in higher education. These institutions can and should be used as "benchmarks" for higher education as a whole with respect to this issue.

The needs of FGCS illuminated by the current study should be addressed by student affairs professionals too. They should seek every opportunity to promote and encourage inclusiveness within the campus community. They need to provide opportunities for first-generation students to be engaged in their education through clubs, organizations, advisory councils, etc. According to Whitt, Edison, Pascarella, Nora, & Terenzini (1999), this activity helps students to feel connected to the university; hence, not only enhancing their experience in higher education, but also directly and indirectly increasing student retention and graduation rates - areas many first-generation students are most at risk. The needs of these students (i.e. support programs, mentoring programs, scholarships, advising, etc.) must be addressed early and often; hence it is important to begin during freshman orientation.

The concerns and the needs of FGCS found in this study should also be considered from policy point of view. With regard to policymakers in academic affairs, policies should provide frameworks for helping first-generation college students cope with issues regarding their transition to college and also collaborate with student affairs professionals to create an environment where first-generation students see the campus as welcoming, supportive, nurturing, and not hostile.

According to Richardson and Skinner (2000), summer transition programs have proven to be successful in helping many first-generation college students with the transition to college. Such programs can also help first-generation students better understand the value of a college education. The most successful programs tend to be those that provide "systematic and comprehensive academic support services (such as assessment and remediation, learning laboratories, tutorial services, intrusive advising, and monitoring the students' progress) until a student is firmly established in a major" (Richardson & Skinner, 2000, p. 39). Summer transition programs can help lay a solid foundation in helping students build self-confidence so that they are more comfortable interacting with faculty, and navigating the system of higher education. Such programs can also assist students in developing their academic abilities; thus increasing both retention and graduation rates. However, such programs may be more effective if the curriculum stresses the importance of more overt forms of support. For instance, according to Justiz and Rendon (1989), such programs should encompass what they call "validating" experiences – encounters with administrators, faculty members, and other students who send important signals to first-generation students that they are competent learners, that they can succeed, that they have a rightful place in the academic community, and that their background and past experiences are sources of knowledge and pride, not something to be devalued.

It is also possible to achieve these goals through first-year experience (FYE) programs and mentoring. Many administrators and faculty members want higher retention rates among undergraduate students. According to Watson, et al. (2002) the mission or purpose of the FYE programs is to assist incoming students in making a successful transition to college, both academically and socially. By participating in such programs, students learn study and time management skills, discover how to use campus resources, increase interpersonal communications, and develop a sense of belonging to their institution's community. Since it was found that FGCS students of color are less confident in their academic readiness and study skills, FYE programs are especially important for students of color. In addition, FYE programs stress the importance of "Life Long Learning," which may capture the interest of those first-generation students who like reading for pleasure. University officials need to make certain these programs are designed by a collaborative team (i.e., faculty members, student affairs and academic affairs officers), and are fundamentally grounded in student development, sociology and psychology theories. This is especially important for students of color.

According to Watson et al., (2002) mentoring programs have proven to be successful in exposing FGCS to college and providing a welcoming environment. Mentors are likely to be sources of inspiration and act as coaches, professional friends, sponsors, facilitators, and in the case of many FGCS - role models. Mentors listen, motivate and provide constructive intervention at critical and key transitional points. This is essential since mentors (professors, staff, upper classmates, or administrators) have insider knowledge of the institution; hence they can help students navigate the system of higher education. Researchers have found that mentoring such as helping them clearly identify which academic programs are best suited for them can have a major impact in students' academic performance regardless of race or ethnicity. Such programs can play key roles in the success of many first-generation students. Despite these proven benefits, many in higher education are still slow to adopt mentoring practices, and this has prompted others to question how welcoming higher education is to certain groups. However, it should be noted that mentoring programs are not a "stand-alone" solution. Such programs should be coupled with on-going support and tutoring services (e.g., summer transition programs).

The present study adds new knowledge about first-generation college students, which is a relatively unexplored topic. Some theories from existing literature were confirmed by the present study, which reinforces the confidence in the theory. However, some findings of the current study contradicted the literature such as more FGCS read for pleasure, which certainly invokes the necessity of further study on this topic using different criteria. The study illuminates an

under-studied group of students and provides higher education officials with additional information on first-generation students.

Student Affairs administrators can make use of these findings to develop inclusive orientation programs designed to increase first-generation students' interaction with faculty members and socialization into higher education. These programs must be in collaboration with faculty members and others to create a campus environment that enhances student and faculty interaction as well as to provide opportunities for first-generation students to feel connected. One means of fostering interaction and socialization with university officials is through participation in small, highly individualized orientation classes with built-in opportunities for one-on-one contact in and out of the classroom. Mentoring programs have proven to be highly successful for high-risk undergraduate students such as students of color, women, low-income persons, the physically challenged, and first-generation college students (York-Anderson & Bowman, 1991). These programs have evolved to promote students' emotional, environmental, and academic acculturation in the college setting. Such programs create supportive environments where first-generation students can be affirmed by their peers.

University officials should also consider revising placement testing during orientation to include sections that assess students' computer skills since FGCS rated lower on their computer skills than non-FGCS. Those students, who test scores fall below a university standard, should be required to enroll in a first-year experience program with a computer base component.

This study shows that first-generation students read more for pleasure than non first-generation students. Therefore, in an effort to help first-generation students feel connected to the campus, student affairs officials can work with directors of student life offices and directors of university libraries to establish student organizations and/or book clubs for first-generation students that center around pleasure reading.

Conclusion

It is not surprising that students who are successful during the first year of college are more likely to persist to graduation. Obtaining a college degree for most students may not be met with significant challenges; however, first-generation students may encounter multiple challenges. This study highlights a pre-college factor that may present such a challenge for first-generation students during their college experience (i.e., lower high school grade point averages). University officials can use this information to create specific academic early warning programs that help identify, within the first three weeks of class, students in academic distress and provide sufficient support.

Eventually, most colleges and universities in the United States will come face-to-face with the reality that the student population in higher education is continuing to change. These changes will impact the way university personnel teach, conduct research, develop programs, and deliver services. It is believed that educators, in higher education, need to do a better job of identifying and understanding this high-risk population. This group will encounter the normal developmental issues that all freshmen and transfer students face; however, their chances of successfully navigating through them without educators' support are slim. Educators must never lose sight of the fact that they have a basic ethic of care to all the students.

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