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Information Seeking Anxiety and Preferred Information Sources of First-Generation College Students

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Article abstract

Objective – To determine whether information seeking anxieties and preferred information sources differ between first-generation college students and their continuing-generation peers. Methods – An online survey was disseminated at two public college campuses. A total of 490 respondents were included in the results. Independent variables included institution, year in college, and generational status. Instead of using a binary variable, this study used three groups for the independent variable of generational status, with two first-generation groups and one continuing-generation group based on parental experience with college. Dependent variables included 4 measures of information seeking anxiety and 22 measures of preferred information sources. Responses were analyzed using SPSS. One-way independent ANOVA tests were used to compare groups by generational status, and two- and three-way factorial ANOVA tests were conducted to explore interaction effects of generational status with institution and year in college. Results – No significant differences in overall information seeking anxiety were found between students whose parents had differing levels of experience with college. However, when exploring the specific variable of experiencing anxiety about “navigating the system in college,” a two-way interaction involving generational status and year in school was found, with first-generation students with the least direct experience with college reporting higher levels of anxiety at different years in college than their peers. Two categories of first-generation students were found to consult with their parents far less than continuing-generation peers. The study also found that institutional or generational differences may also influence whether students ask for information from their peers, librarians, tutoring centers, professors, or advisors. Conclusion – This study is one of the first to directly compare the information seeking preferences and anxieties of first-generation and continuing-generation students using a non-binary approach. While previous research suggests that first-generation students experience heightened anxiety about information seeking, this study found no significant overall differences between students based on their generational status. The study reinforced previous research about first-generation college students relying less on their parents than their continuing-generation peers. However, this study complicates previous research about first-generation students and their utilization of peers, librarians, tutoring centers, professors, or advisors as information sources, and suggests that institutional context plays an important role in shaping first-generation information seeking.

Evidence Based Library and Information Practice

Research Article

Information Seeking Anxiety and Preferred Information Sources of First-Generation College Students

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Abstract

Objective – To determine whether information seeking anxieties and preferred information sources differ between first-generation college students and their continuing-generation peers.

Methods – An online survey was disseminated at two public college campuses. A total of 490 respondents were included in the results. Independent variables included institution, year in college, and generational status. Instead of using a binary variable, this study used three groups for the independent variable of generational status, with two first-generation groups and one continuing-generation group based on parental experience with college. Dependent variables included 4 measures of information seeking anxiety and 22 measures of preferred information

sources. Responses were analyzed using SPSS. One-way independent ANOVA tests were used to compare groups by generational status, and two- and three-way factorial ANOVA tests were conducted to explore interaction effects of generational status with institution and year in college.

Results – No significant differences in overall information seeking anxiety were found between students whose parents had differing levels of experience with college. However, when exploring the specific variable of experiencing anxiety about "navigating the system in college," a two-way interaction involving generational status and year in school was found, with first-generation students with the least direct experience with college reporting higher levels of anxiety at different years in college than their peers. Two categories of first-generation students were found to consult with their parents far less than continuing-generation peers. The study also found that institutional or generational differences may also influence whether students ask for information from their peers, librarians, tutoring centers, professors, or advisors.

Conclusion – This study is one of the first to directly compare the information seeking preferences and anxieties of first-generation and continuing-generation students using a non-binary approach. While previous research suggests that first-generation students experience heightened anxiety about information seeking, this study found no significant overall differences between students based on their generational status. The study reinforced previous research about first-generation college students relying less on their parents than their continuing-generation peers. However, this study complicates previous research about first-generation students and their utilization of peers, librarians, tutoring centers, professors, or advisors as information sources, and suggests that institutional context plays an important role in shaping first-generation information seeking.

Introduction

In the past three decades, the number of individuals attending higher education for a bachelor's degree has increased: according to the Current Population Survey, 33.4% of adults over 25 in 2016 held a bachelor's degree, a figure that has increased from 4.6% in 1940 (U.S. Census Bureau, 2017). One group that has been receiving increasing attention is first-generation (FG) college students, a population that accounts for up to 56% of undergraduates, depending on the parameters used to define this group (Center for First-Generation Student Success, 2019). While a large body of literature exists on characteristics of FG students, less is known about FG students' information seeking behavior, particularly in comparison to non-FG students.

The current paper builds on previous research that explored FG students' information seeking strategies, as well as their self-perceptions of their information seeking abilities (Brinkman et al., 2013). Brinkman et al. found relationships between affective concerns of information seeking anxiety and academic information seeking behaviors in FG students, but did not compare FG students to non-FG students. Our study adds to the existing literature by exploring levels of information seeking anxiety as well as information source preferences and comparing responses from categories of FG and non-FG students, and also samples students from two institutions.

Literature Review

Historically, researchers studying FG students emphasize the "challenges" that this population faces (Ilett, 2019). Surveys conducted by the

National Center for Educational Statistics indicated that FG students were more likely to come from lower socioeconomic backgrounds, were ethnic minorities, had taken fewer college-preparatory classes (Choy, 2001), or were more likely to have children and work full-time while enrolled (Nunez & Cuccaro-Alamin, 1998). In early foundational studies, researchers discussed several challenges faced by FG students in higher education: lower levels of persistence and academic success, differing experiences in higher education, and their need for academic intervention (Chen & Carroll; 2005; Engle & Tinto, 2008; Pascarella et al, 2004; Terenzini et al, 1996). In addition, authors of several qualitative studies suggested that FG students experienced anxieties from impostor syndrome or feeling like an outsider (London, 1992; Whitehead & Wright, 2017). In effect, the dominant mode for discussing FG college students has been through the language of the deficit model (Valencia, 1997) – framing a population's differences from the dominant group as "deficiencies," and exploring ways to support a non-dominant population so that they can "overcome" these deficiencies.

Another problematic trend has been the lack of clarity around the term "first-generation." First defined in the Higher Education Act (1965) with the creation of the Federal TRIO programs, "first-generation college student" originally meant "(A) an individual both of whose parents did not complete a baccalaureate degree; or (B) in the case of any individual who regularly resided with and received support from only one parent, an individual whose only such parent did not complete a baccalaureate degree" (p. 3-4). However, many researchers and institutions defined "first-generation" differently: Peralta and Klonowski (2017) found 9 different definitions for this label, from parents with no schooling past high school to parents who may have attended a 4-year institution but did not complete a bachelor's degree. Among policymakers or school administrators, the term "first-generation" can be used as a catch-all or substitute phrase for various "underprivileged" identities such as race, ethnicity, or class (Sharpe, 2017). Other scholars have noted that because the category "first-generation" is typically constructed in studies as a binary variable (first-generation vs. continuing-generation), the way "first generation" is defined can lead researchers to drawing different conclusions about FG students as a population (Toutkoushian et al., 2019).

In the past decade, a growing body of scholarship on FG students has emerged in the library and information science field. In a critical review of this literature, Ilett (2019) identified four dominant themes in discussing FG students: they are presented as (1) outsiders, (2) a problem, (3) reluctant library users, and (4) capable students. A few researchers have focused on FG information seeking behaviors. Some researchers suggested that FG students may prefer different formats of information sources, such as preferring to use online reference sources (Soria et al., 2015) or preferring to seek information from peers and pamphlets over advisors and mentors (Torres et al., 2006). Logan and Pickard (2012) found that FG students were most likely to seek help from instructors or teaching assistants, and unlikely to seek help from librarians or family members. Tsai (2012) found that, when seeking information about coursework, FG students were not likely to consult family members, but turned to peers instead. FG students in another study expressed frustration in not only their inability to turn to parents for information, but also in their perception that for other students, "their parents are their mentors and they can tell them what to do" (Brinkman et al., 2013, p. 646). Significantly, however, none of the studies on FG information seeking directly compared FG students to other populations.

Aims

In this study, we explored whether information seeking patterns or anxieties differ between

students whose parents have different levels of college experience. We separated generational status into three variables: FG-no college (neither parent attended college), FG-attended (one or more parents may have attended college, but none graduated), and CG (continuing generation, at least one parent graduated from college). The main research questions were as follows:

> **Q1:** Do students report different levels of **anxiety in seeking information** on college campuses based on generational status?
>
> **Q2:** Do students of different generational statuses report different **preferences for information sources** about questions related to **academics**?
>
> **Q3:** Do students of different generational statuses report different **preferences for information sources** about questions related to **college life**?

Methods

Research was conducted at two public, four-year residential universities, one in the Midwestern United States and one in the Eastern United States. The student population was predominantly white and traditionally aged at both institutions. At the time the study was conducted, Institution A enrolled approximately 19,000 students, and Institution B enrolled approximately 7,000 students.

Each author disseminated an online survey at their home institution. The study was reviewed and deemed exempt by both institutional review boards. However, slightly different sampling methods and tools were used based on the tools and protocols available to each institution. At Institution A, the Office of Institutional Research prepared a randomized sample of 2000 undergraduate participants with a 200% oversampling of FG students in order to ensure that enough FG students were included in the sample. To encourage participation in the survey, students were eligible to win one of five $50 Amazon gift cards. Prior to data cleaning, 326 initial responses were collected, for a response rate of 16%. Data were collected in Qualtrics. At Institution B, the Office of Research and Institutional Assessment provided a population list of all 6,305 enrolled undergraduate students. Through this method, 208 initial responses were collected for a response rate of 3%. Data were collected in Google Forms. Surveys and follow-up emails were sent at the end of the fall semester and at the beginning of the spring semester at both institutions. Data were imported into SPSS for analysis.

Instrumentation

Demographics

Eight demographic questions were collected in this study: participants' year in school, age, gender, whether they identified as an international student, whether they had a sibling who attended college before them, parental level of education, self-reported estimated grade point average (GPA), and major.

Generational Status

Student responses to the demographic question on the highest level of parental education were re-coded into the following three variables in order to avoid a binary variable for generational status, while still maintaining a large enough sample size in each category to conduct valid tests:

- **First-Generation, No College (FG-NC):** Students who reported that neither parent attended college
- **First-Generation, Attended (FG-A):** Students whose parents may have attended college, but did not graduate

- **Continuing-Generation (CG):** Students who reported at least one parent who graduated from college

Information Seeking Behaviors

Twenty-six exploratory survey questions (see Appendix) regarding information seeking were developed from data collected in a qualitative study by Brinkman et al. (2013).

- **College Information Seeking Anxiety.** Four questions about student anxiety levels about information seeking on campus were based on recurring statements made by students who participated in the previous qualitative study. Students were asked to rate their agreement with four statements on a Likert scale from 0-10. Two statements were framed positively and two statements were framed negatively.
- **College Information Sources.** Twenty-two questions concerning information sources were also included. One set of 11 questions asked students to use a 5-point Likert scale to rate their likelihood of seeking help from specific information sources when seeking information about academics. The other set of 11 questions asked students to use a 5-point Likert scale to rate their likelihood of seeking help from the same set of information sources if they were seeking information about college life.

Results

The initial data set included 534 participants. Through data-cleaning procedures, we identified 44 participants who skipped more than 10% of the survey. These cases were excluded listwise, yielding a final data set of 490 responses, with 59.4% (n = 291) from Institution A and 40.6% (n = 199) from Institution B. Students were distributed across by year in college (19.7% first year, 24% sophomore, 23.2% junior, 32.8% senior, and 0.4% "other"). The majority of respondents (71%) identified as female and reported their age range as 18-22 years old (88.5%). A portion of students (40.6%) indicated that they had an older sibling who attended college before them. The majority of students were high achievers: 38.4% of students reported a cumulative GPA of 3.5 or higher, and an additional 34.7% reported a GPA between 3.0 and 3.49. Based on the highest reported level of education by their parents, 20.5% of students (n=100) were coded as first- generation, no college (FG-NC), 16.4% (n=80) as first-generation, attended (FG-A), and 63.1% (n=308) as continuing-generation (CG).

Table 1
College Information Seeking Anxiety Levels by Generational Status

Means based on Generational Status					
	FG-NC	**FG-A**	**CG**	**Total**	***F*-Test**
I don't know who to turn to if I have questions about college	3.36 (2.16)	3.51 (2.28)	3.67 (2.28)	3.58 (2.26)	$F(2, 477) = .75$, $p = .48$
Other students around me know more about college than I do	5.18 (2.54)	5.43 (2.31)	5.25 (2.39)	5.27 (2.41)	$F(2, 465) = .24$, $p = .79$
People on campus are not helpful when I ask them questions	3.76 (2.27)	3.87 (2.09)	4.15 (2.08)	4.02 (2.12)	$F(2, 449) = 1.44$, $p = .24$
It is difficult to navigate the system in college	4.74 (2.44)	5.06 (2.53)	4.96 (2.48)	4.93 (2.47)	$F(2, 476) = .41$, $p = .66$

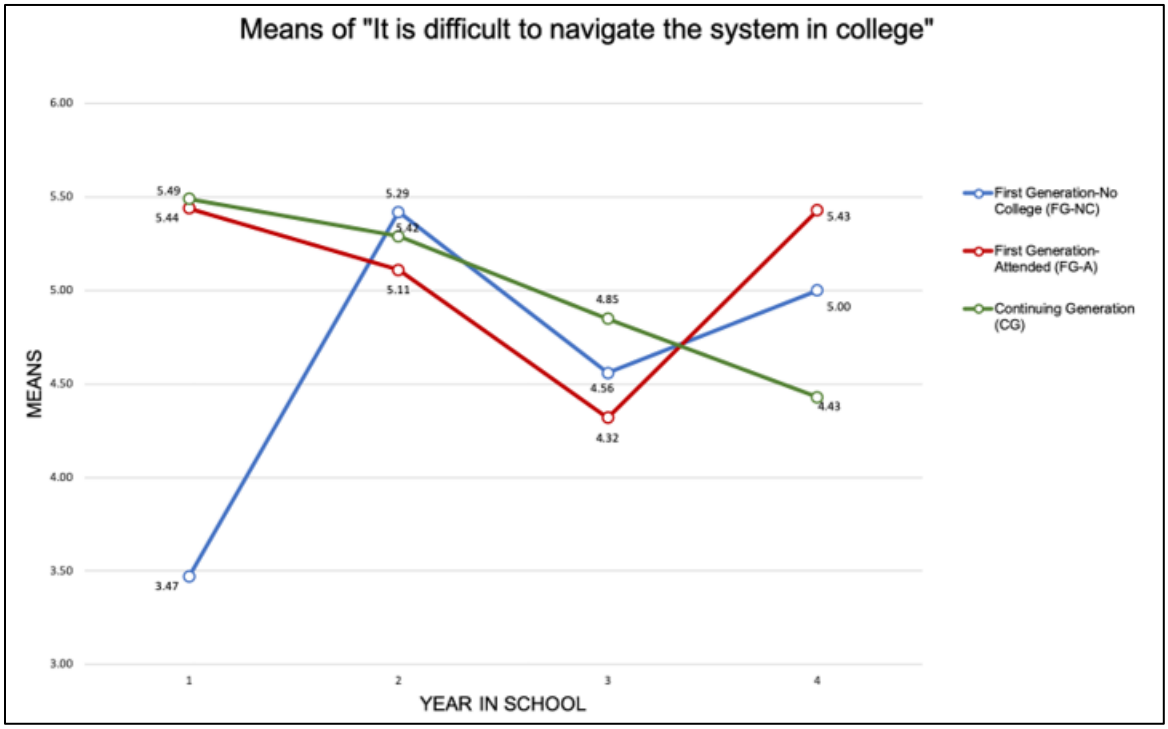

Figure 1

Agreement with Q4 "It is difficult to navigate the system in college": interaction of generational status and year in school.

College Information Seeking Anxiety

After calculating the mean, an initial one-way ANOVA was used to explore the relationship of generational status on college information seeking anxiety. No significant effects were found, and students reported low-to-medium levels of anxiety overall. Table 1 summarizes means, standard deviations, and overall effects.

Because we sampled students across four years in college and from two institutions, a series of three-way ANOVAs were conducted to explore the main effects of generational status and the interaction effect between generational status, institution, and year in college on college information seeking anxiety variables. While no significant three-way interactions between all three variables of generational status, institution, and year in school were found for any of the questions, a two-way interaction involving generational status and year in school was found for Question 4 ("It is difficult to navigate the system in college"), $F(6, 453) = 2.322$, $p = .03$. Specifically, FG-NC students reported the lowest levels of difficulty navigating the system during their first year $M = 3.47$ (SD = 1.77) and the highest levels of difficulty during their second year $M = 5.42$ (SD = 2.59), decreased difficulty in their third year $M = 4.56$ (SD = 2.35), and increased difficulty again in their final year $M = 5.03$ (SD = 2.53). FG-A students displayed a similar pattern to CG students for the first three years of college, with decreasing levels of reported difficulty in navigating the system with each passing year. However, in their final year of college, FG-A students reported a sharp increase in difficulty navigating the system $M = 5.32$ (SD = 2.77), whereas CG students continued to report lower levels of difficulty in navigating the system $M = 4.43$ (SD = 2.58). Figure 1 illustrates these differences.

Table 2
One-Way ANOVA Results Across Academic Information Source Variables

Means based on Generational Status					
	FG-NC	**FG-A**	**CG**	**Total**	***F*-Test**
Parent	2.16 (1.30)	2.74 (1.43)	3.50 (1.33)	3.10 (1.45)	$F(2, 485) = 40.89$, $\mathbf{p < .01}$*
Friend	3.62 (1.17)	3.90 (.89)	4.08 (.85)	3.95 (.95)	$F(2, 483) = 9.13$, $\mathbf{p < .01}$*
Other Relative	2.60 (1.41)	2.48 (1.28)	2.47 (1.22)	2.50 (1.27)	$F(2, 481) = .43$, $p = .65$
Professor	4.41 (.85)	4.38 (.70)	4.37 (.70)	4.38 (.74)	$F(2, 483) = .10$, $p = .91$
Academic Advisor	4.10 (1.10)	3.89 (1.34)	3.95 (1.23)	3.97 (1.22)	$F(2, 482) = .77$, $p = .46$
Resident Advisor	2.20 (1.31)	2.48 (1.33)	2.37 (1.25)	2.36 (1.28)	$F(2, 484) = 1.12$, $p = .33$
Librarian	2.66 (1.30)	2.68 (1.34)	2.30 (1.12)	2.43 (1.21)	$F(2, 485) = 5.47$, $\mathbf{p < .01}$*
Tutoring Center	2.78 (1.28)	2.69 (1.31)	2.37 (1.19)	2.51 (1.24)	$F(2, 483) = 5.22$, $\mathbf{p < .01}$*
Coworker or Supervisor	2.51 (1.40)	2.58 (1.24)	2.46 (1.22)	2.49 (1.26)	$F(2, 480) = .25$, $p = .78$
I would look it up on my own	3.69 (1.30)	3.68 (1.17)	3.50 (1.24)	3.57 (1.24)	$F(2, 482) = 1.22$, $p = .30$
Other	2.46 (1.24)	2.33 (.96)	2.14 (1.16)	2.26 (1.15)	$F(2, 172) = 1.31$, $p = .27$

* Significant at the 0.01 level

College Information Sources: Academic Information

Students were asked to rate their likelihood of consulting with ten potential information sources when they had questions about academics. They were also given the opportunity to select *other* and write in a response. The most common write-in response was a synonym of "spouse/partner" (n=4), but the majority of students selecting *other* left the write-in section blank. We used a one-way ANOVA to examine the effect of generational status across the ten information source variables. Generational status had a significant overall effect on whether students were likely to consult the following sources for academic information: Parents $F(2, 485) = 40.89$, $p < .01$, Friends $F(2, 483) = 9.13$, $p < .01$, Librarians $F(2, 485) = 5.47$, $p < .01$ and Tutoring Centers $F(2, 483) = 5.22$, $p < .01$. Table 2 summarizes means, standard deviations, and ANOVA results.

We used a series of three-way ANOVAs to examine whether institution or year in college interacted with generational status on likely academic information sources. No significant three-way interactions were observed for any academic information source variables. However, significant two-way interactions with generational status and institution were found for the variables "Friend" $F(2, 460) = 5.089$, p = .007 and "Librarian" $F(2, 462) = 3.306$, $p = .038$. Figure 2 illustrates that FG-NC students at Institution A were significantly less likely to consult with friends for academic information ($M = 3.24$, SD = 1.36) than FG-NC students at Institution B ($M = 3.84$, SD = .99). There were no significant differences between institutions for FG-A students (Institution A $M = 3.93$, SD = .99; Institution B $M = 3.87$, SD = .81) or CG students (Institution A $M = 4.08$, SD .84; Institution B $M = 4.07$, SD = .88).

For the variable "Librarian," Figure 3 illustrates that CG students at Institution A were far less likely to ask a librarian for help with academic information ($M = 2.18$, SD = 1.01) than CG students from Institution B ($M = 2.54$, SD = 1.18). Furthermore, both FG-NC and FG-A students at

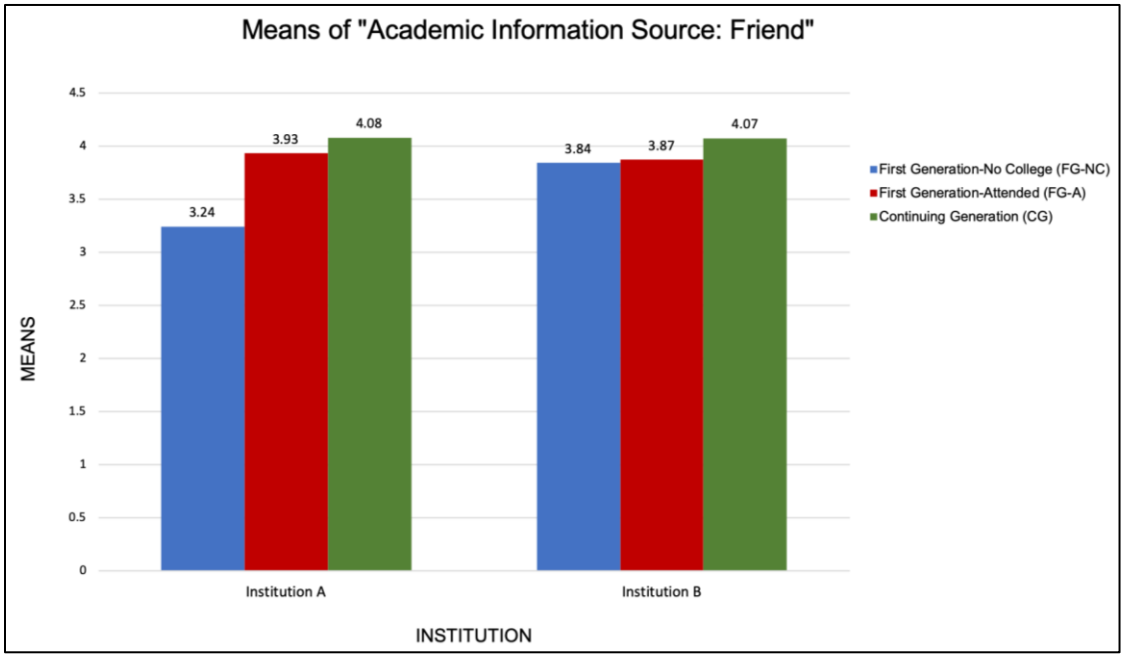

Figure 2
Likelihood of asking a friend for academic information: interaction of generational status and institution.

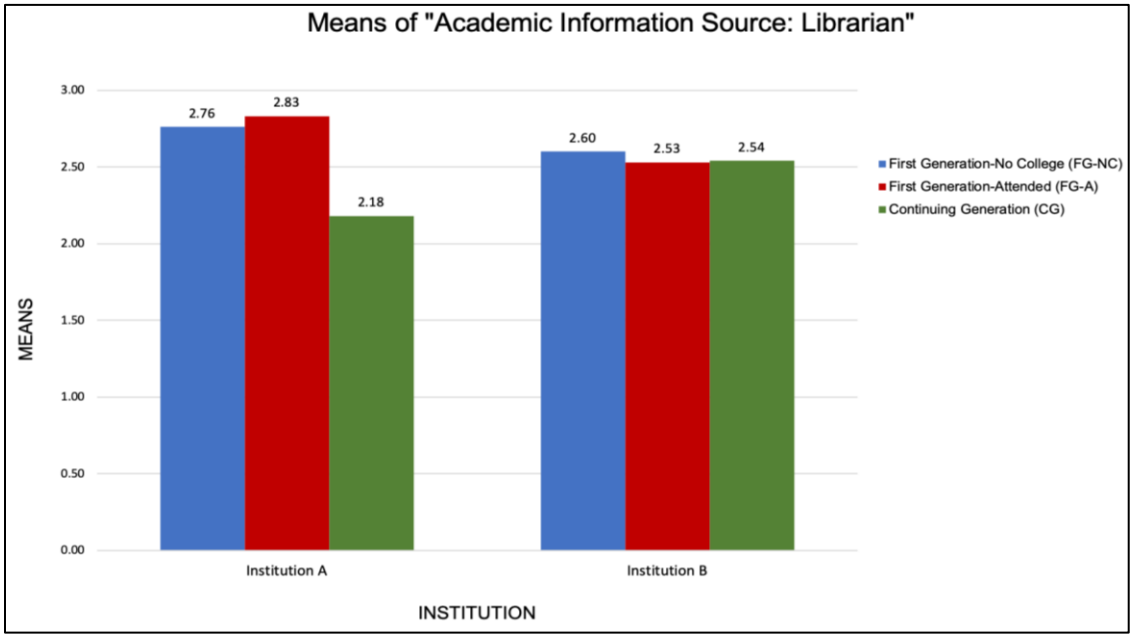

Figure 3
Likelihood of asking a librarian for academic information: interaction of generational status and institution.

Table 3
One-Way ANOVA Results Across College Life Information Source Variables

Means based on Generational Status					
	FG-NC	**FG-A**	**CG**	**Total**	***F*-Test**
Parent	2.22 (1.40)	2.54 (1.39)	3.31 (1.36)	2.96 (1.45)	$F(2, 484) = 28.135$, $\mathbf{p < .001}$**
Friend	3.93 (1.23)	4.35 (.87)	4.55 (.65)	4.39 (.87)	$F(2, 484) = 21.223$, $\mathbf{p < .001}$**
Other Relative	2.53 (1.41)	2.65 (1.29)	2.79 (1.36)	2.71 (1.36)	$F(2, 481) = 1.557$, $p = .212$
Professor	2.78 (1.35)	2.59 (1.25)	2.40 (1.07)	2.51 (1.17)	$F(2, 482) = 4.144$, $\mathbf{p = .016}$*
Academic Advisor	2.71 (1.36)	2.46 (1.23)	2.34 (1.16)	2.43 (1.22)	$F(2, 483) = 3.596$, $\mathbf{p = .028}$*
Resident Advisor	2.57 (1.52)	2.90 (1.52)	2.80 (1.32)	2.77 (1.40)	$F(2, 481) = 1.451$, $p = .235$
Librarian	2.06 (1.14)	1.81 (.98)	1.65 (.86)	1.76 (.95)	$F(2, 482) = 7.792$, $\mathbf{p = .001}$**
Tutoring Center	2.08 (1.14)	1.75 (.97)	1.65 (.87)	1.75 (.96)	$F(2, 481) = 7.792$, $\mathbf{p < .001}$**
Coworker or Supervisor	2.64 (1.45)	2.85 (1.38)	2.53 (1.26)	2.60 (1.32)	$F(2, 482) = 1.871$, $p = .155$
I would look it up on my own	3.52 (1.46)	3.40 (1.25)	3.40 (1.23)	3.42 (1.28)	$F(2, 481) = .316$, $p = .729$
Other	2.36 (1.24)	2.52 (1.15)	2.13 (1.09)	2.27 (1.15)	$F(2, 157) = 1.506$, $p = .225$

* Significant at the 0.05 level
** Significant at the 0.01 level

Institution A (FG-NC *M*= 2.76, SD = 1.42, FG-A *M* = 2.83, SD = 1.26) were more likely to consult with a librarian as an institutional source than similar groups of students at Institution B (FG-NC *M* = 2.60, SD = 1.24, FG-A *M* = 2.53, SD 1.33).

College Information Sources: College Life Information

The next set of questions asked students to rate their likelihood of consulting with an information source when seeking information about college life. We used a one-way ANOVA to examine the effect of generational status across information source variables. Significant differences were found for multiple variables. Students whose parents had less college experience were less likely to turn to parents $F(2, 484) = 28.135$, $p < .001$ and friends $F(2, 484) = 21.223$, $p < .001$ for information about college life, but more likely to turn to professors $F(2, 482) = 4.144$, $p = .016$, academic advisors $F(2, 483) = 3.596$, $p = .028$, librarians $F(2, 482) = 7.792$, $p = .001$, and the tutoring center $F(2, 481) = 7.792$, $p < .001$. Table 3 summarizes means, standard deviations, and ANOVA results.

Interactions between generational status and institution or year in college were also explored through a series of three-way ANOVAs. A two-way interaction between generational status and institution was significant for the variable "Friend" $F(2, 461) = 3.204$, p = 0.42. Specifically, FG-NC students at Institution A were less likely to consult with friends for college life information (*M* = 3.68, SD = 1.31) than FG-NC students at Institution B (*M* = 4.08, SD = 1.26). See Figure 4.

A two-way interaction was also found for generational status and year in school for the likelihood of asking a professor for college life information $F(6, 458) = 2.385$, p = .028. Figure 5 illustrates how FG-NC, FG-A, and CG students reported different patterns of behavior by year. FG-NC students were most likely to consult with professors in their junior year (*M* = 3.35, SD = 1.23) but least likely in their senior year (*M* = 2.54, SD = 1.30). FG-A students followed a

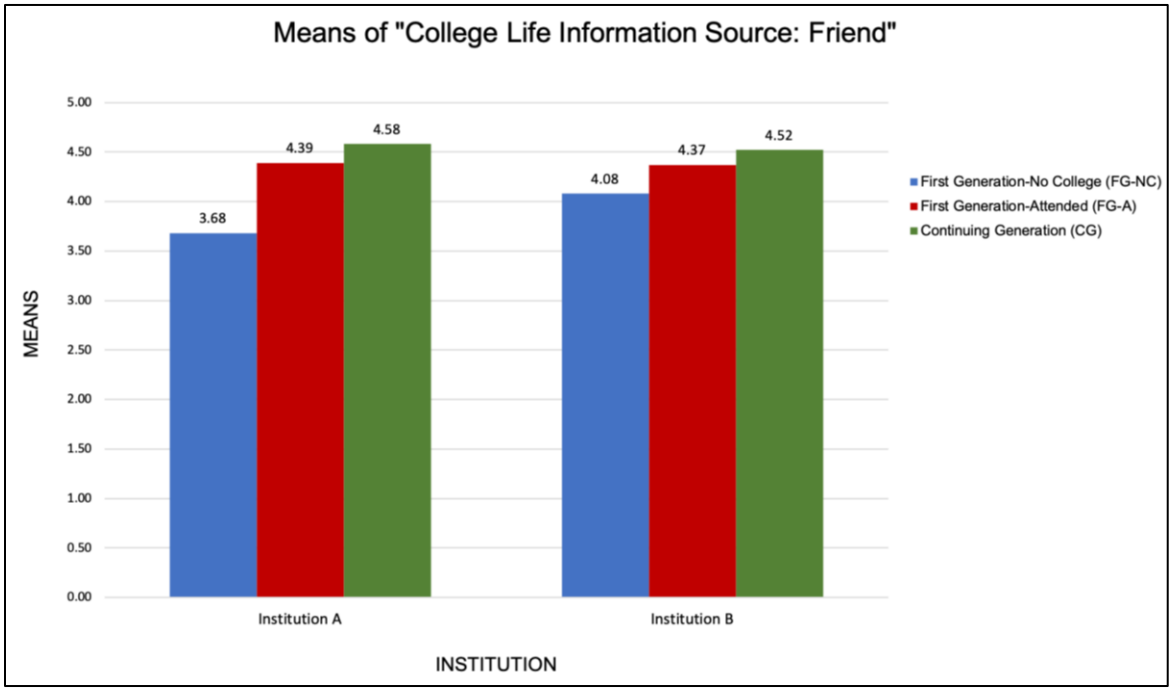

Figure 4
Likelihood of asking a friend for college life information: interaction of generational status and institution.

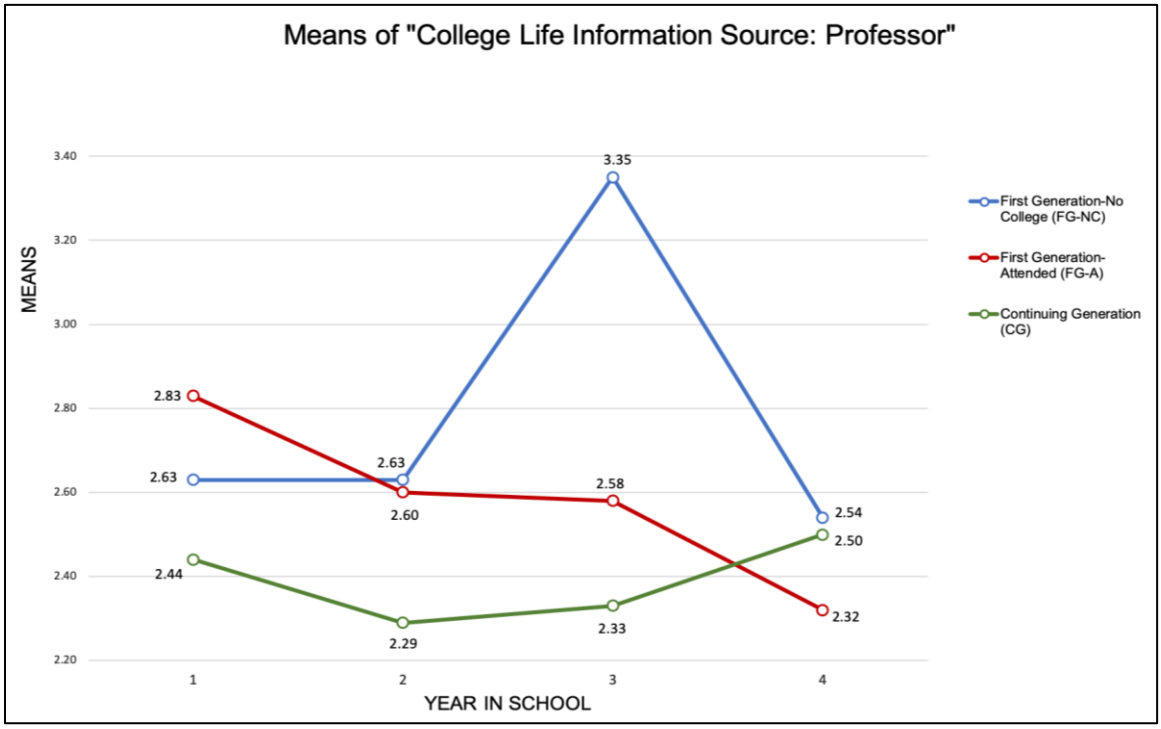

Figure 5
Likelihood of asking a professor for college life information: interaction of generational status and year in school.

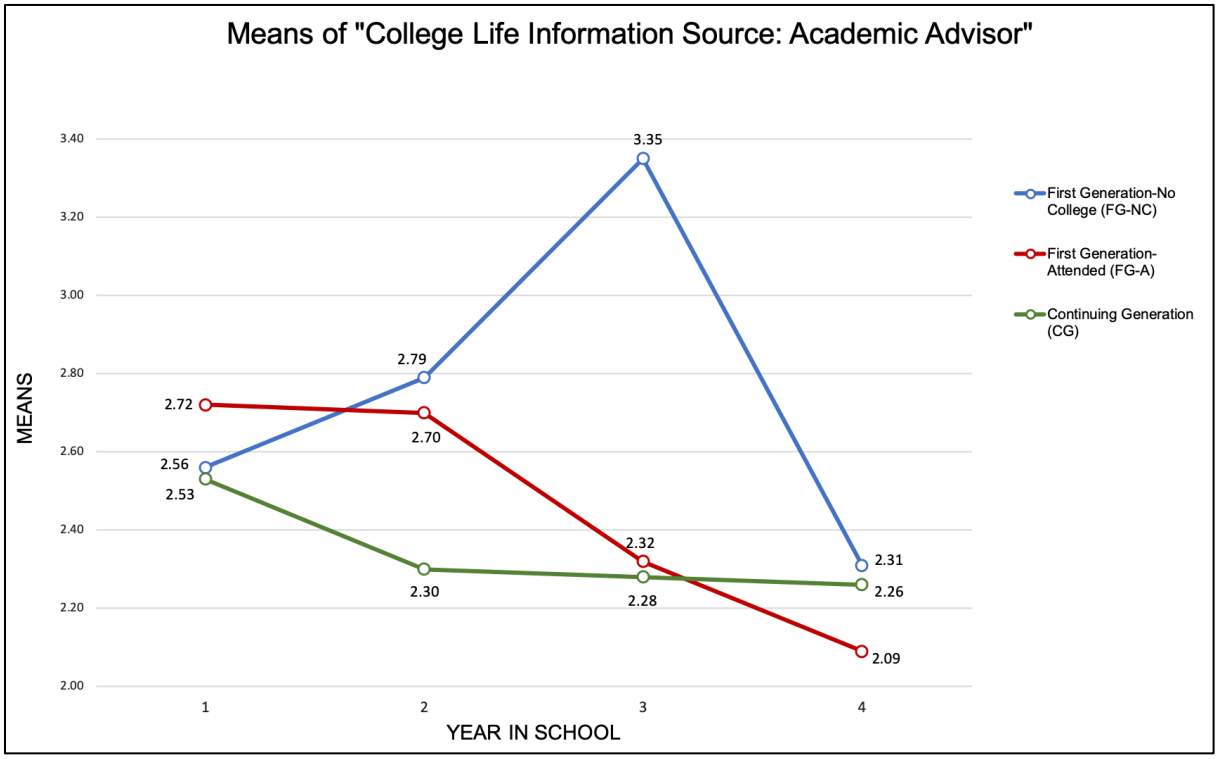

Figure 6
Likelihood of asking an academic advisor for college life information: interaction of generational status and year in school.

different pattern, and were most likely to consult with professors in their first year (*M* = 2.83, SD = 1.38) declining each year to their senior year (*M* = 2.32, SD = 1.29). CG students, however, were the most likely to consult with professors during their senior year (*M* = 2.50, SD = 1.19).

Finally, a two-way interaction was found between generational status and year in school for the variable "Academic Advisor" $F(6, 460) = 2.555$, $p = .019$. See Figure 6. FG-NC students reported a significantly higher likelihood (*M* = 3.35, SD = 1.33) of consulting with an academic advisor for college life information in their junior year, whereas FG-A and CG students reported declining or flat likelihood of asking an academic advisor for college life information as they advanced toward their senior year.

Discussion

Information Seeking Anxiety

The main purpose of this study was to determine if generational status had any effect on college student information seeking anxiety and sources. In contrast with previous studies that suggested that FG students may have experienced increased anxiety or feelings of impostor syndrome (Brinkman et al., 2013; London, 1989; Whitehead & Wright, 2017) in this study we did not find that FG students reported higher anxiety overall about information seeking than their CG peers. On only one information seeking anxiety variable (the statement "it is difficult to navigate the system in college") did the responses of FG-NC students follow a different curve than those of

other students: FG-NC students did not find the "system" in college to be particularly difficult to navigate in their first year, whereas FG-A and CG students thought college was the most difficult to navigate in their first year. In their second year, however, FG-NC students reported much higher levels of anxiety about navigating the system in college while other groups reported decreasing levels of concern. Finally, both FG-NC and FG-A students found navigating the system more difficult in their senior year.

The Dunning-Kruger Effect provides one potential explanation for the variation in FG student responses over time. With this theory, Kruger and Dunning (1999) described how individuals who lacked "competence" or expertise in a domain tended to lack the metacognitive skills in evaluating their own performance, and consequently tended also to be overly optimistic and confident in their abilities in that domain. In the current study, FG-NC may have reported very low levels of concern about navigating the system in college because they didn't know enough about what there was to navigate, whereas other groups of students with more familial knowledge about the college system might have less confidence. This may have been particularly true for first-year students in this particular study, since the surveys were sent at the end of the students' fall semester, with follow-up emails sent at the beginning of the spring semester. Therefore, students would have only had one semester of experience in trying to "navigate the system in college" on which to base their responses. By their sophomore year, students had more time to develop awareness of the nature of the domain (navigating the system in college), and therefore their evaluation of their abilities to navigate that domain changed and they became less confident. However, further research would be needed to establish such links.

The overall result that FG students showed no more agreement with the information seeking anxiety statements than CG students was surprising, because the statements for the current study were formed from Brinkman et al.'s (2013) qualitative study on FG students, in which "many first-generation students perceived that other students could ask their parents when they had questions about the 'big picture' of navigating college life, whereas they could not" (p. 648). In other qualitative studies based on interviews and focus groups, FG students reported feeling like "outsiders," or lacking information or capital when compared with non-FG students (Bergerson, 2007; Cushman, 2007; London, 1992). While the current study does not disprove these previous studies, we do suggest that FG students may have internalized a sense of deficit that they have then attributed to their identity as first-generation. This phenomenon is interesting and worthy of future research, as other studies have suggested that the "first-generation college student" identity is a relatively newly formed identity for FG students in comparison to other intersecting identities such as race, gender, and class (Orbe, 2004). FG students are continually forming and performing this new identity while in college and, if their identity as a "college student" is still relatively weak, they may therefore experience impostor syndrome (Whitehead & Wright, 2017). It is possible that intervention efforts targeted to FG students that emphasize deficits in information, experience, or capital may increase FG students' internalization of deficit thinking and impede their ability to form strong identities as FG students who "belong" in college, thus causing them to feel that other students know more about college, or fit in better, than they do. More research is needed to explore these potential connections.

Information Seeking Sources

In this study, we confirmed previous research that parents are a low information source for FG students (Logan & Pickard, 2012; Tsai, 2012). However, while previous research has suggested that friends or peers are very high

information sources (Tsai, 2012), we found that compared with continuing-generation students, FG students were less likely to ask their peers for both academic or college life information. There may be several reasons for this. For example, if an institution offers highly visible alternative support programs or information pathways specifically for FG students, this may also alter the likelihood of FG students consulting with their peers for information. At both institutions in this study, FG students reported being more likely to seek information (both academic and non-academic) from the campus Tutoring Center. If a campus makes tutoring services more visible to this population, then this can explain why FG students would report seeing this service as a resource. The same phenomenon can be observed with librarians: FG students at Institution A also reported being more likely to consult with librarians for academic information than their CG peers. This runs counter to previous studies that suggested that FG students were reluctant library users (Ilett, 2019; Logan & Pickard, 2012; Long, 2011). Intervention efforts by librarians may explain some of these differences: at Institution A, librarians had been involved for several years in campus wide programs and courses aimed at FG students, including offering FG-specific orientations.

However, the visibility of resources such as tutoring services or library services does not alone explain why FG students might be less likely to ask their friends for information about college life or academics. As evidenced in Figures 2 and 5, the most pronounced difference in seeking information from friends was in FG students from families with no college experience (FG-NC) at Institution A. Campus culture may also provide an important explanation for the reason why FG students at one institution may be less likely to ask their friends for information about college. Institution A is a more selective university, has a small overall percentage of FG students in their total student body, and also has a considerable percentage of "legacy" students (meaning their parents, siblings, or other relatives attended the university). In research on FG identity, Orbe (2004) suggested that for some FG students, "especially those who were attending more selective universities, coming from a family without college degrees was 'embarrassing'" (p. 143). Thus, FG students at Institution A who felt themselves to be in a minority group may have felt reluctant to disclose to their peers that they lacked knowledge about college, and may have consequently sought alternative pathways to information, such as librarians, tutors, or other support services. FG students at Institution B, on the other hand, may not have felt as different or marginalized in comparison to their peers, and may therefore have felt more comfortable asking their peers for information.

We also found an inverse relationship with parental experience in college and the likelihood of students turning to academic sources, such as professors, advisors, librarians, and tutors, for non-academic information about college life. This finding was similar to that of Given (2002) in a study of mature undergraduate students, who tended to turn to on-campus academic sources for everyday life information seeking needs such as childcare. We also found an interesting pattern, where FG-NC students were mostly likely to report seeking information about college life from an academic source (professor or academic advisor) in their junior year. Brinkman et al. (2013) suggested that some students felt a "perceived a lack of follow-up" with campus support systems after their first and second year (pp. 645-646), which, if true, may partially explain why students would turn to alternative sources of information in their junior year. An alternative explanation could be that students by their junior year were more embedded into their major field of study and had identified faculty members who had become their mentors. A third explanation could be that students would be more likely to be living in off-campus housing starting in their third year, particularly at Institution A, which

had a two-year residential requirement. Further research would be needed to establish the motivations of students for seeking out non-academic information from academic sources at specific years in their college career, as well as to establish what kinds of non-academic information was being sought.

Limitations

Although this study extends existing literature on information seeking behavior in first-generation college students, there are several limitations. First, data were collected from self-report surveys that, while based on previous qualitative research, were not validated. There was no way to verify the accuracy of a participant's response. Data were collected from two predominantly white four-year public institutions from the Midwest and East. It is possible that these results may not generalize to institutions that have different demographic or geographic compositions, and may also not generalize to two-year institutions. Finally, the survey did not account for the growing use of social media and unofficial information networks such as Reddit or online communities for information that have increased in popularity since this study was conducted. Future studies should take these networks into account more rigorously.

Conclusions and Directions for Future Research

In this study, we found that there were no general differences in information seeking anxiety between students whose parents had differing levels of experience with college. However, one variable exposed that students who were the first in their family to go to college experienced levels of anxiety about "navigating the system in college" during very different times than their peers. We confirmed that first-generation students consulted with their parents far less than their continuing-generation peers. We also found that institutional or generational differences may influence whether students ask for information from their peers, librarians, tutoring centers, professors, or advisors.

The results of this study have several possible implications for library practice. Most broadly, this research demonstrated that framing services and support for FG students as "at risk" can be problematic at best, and can also be counterproductive or marginalizing. This research is part of a growing body of literature calling for more critical reflection on inclusive library practice. Rather than creating prescriptive programming that reinforces an "at risk" narrative for FG students, libraries and librarians have an opportunity to engage FG students more holistically. For both authors, this current research has influenced how we approach instruction to focus more on metacognitive aspects of information literacy based on the students' learning experiences and a reflection on their understanding. In practice, this might translate to an increase in reflective activities in a library session, enabling the librarian to adapt their lesson in response to the student learning experience. Shifting to a more responsive instructional practice creates a space for the student holistically and avoids transactional, "banking" models of pedagogy (Freire, 2000).

The other important takeaway from this study is that FG students are not a homogenous group; rather, they are negotiating their identities and navigational strategies within a campus culture over time. It is important for librarians to understand their own institutional culture and context, whether it is in learning more about campus demographics as a whole, or in identifying groups on campus that are already providing services for FG students. In a 2019 paper, Brinkman, Natale, and Smith discussed examples of how libraries can collaborate with student affairs units in promoting existing programs that celebrate FG identity, or can situate library services in a larger context of resources for student success. As an example,

one author of this paper was invited to staff a library table at a campus-wide "first-gen day" event. Rather than using the table to distribute library brochures, the table became a zine-making workshop station, covered with magazines, scissors, glue, stencils, pens, and pencils. Students were invited to make a page for a collaborative zine on "what first-gen means to me," which was then included in the university archives and distributed digitally to contributors and participants. In the course of inviting students to become authors of their own unique stories and then archiving them, FG students and library staff had the opportunity to converse about other library services. This example demonstrates the effectiveness of creating programming specifically for FG students that is aligned with campus outreach activities, while also celebrating students' identity holistically.

This study also exposed several areas for further research. One particular line of inquiry is that of the intersections of information seeking, first-generation identity formation, and campus culture. The current research suggested that FG students do lack a major pathway (parents) that continuing-generation students use for academic and non-academic information. Interventions may help forge alternative pathways for such information. At the same time, interventions – especially if framed in the language of deficit - may reinforce a campus culture where FG students may feel singled out, or choose not to disclose their FG identity to their peers for risk of embarrassment, or alternatively, may cause FG students to internalize a sense of deficit (Orbe, 2004). Framing interventions through other approaches, such as "funds of knowledge" approaches (Ilett, 2019), strengthening FG students' identity as "college students" by presenting college as a path to "something greater" than college itself (Whitehead & Wright, 2017), or placing more value on the capital that FG students possess rather than the capital they lack (Bergerson, 2007), may be helpful areas of future investigation.

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Appendix

College Information Seeking Anxiety

How much do you agree with the following statements?

0 = do not agree
5 = neither agree nor disagree
10 = agree completely

	0	1	2	3	4	5	6	7	8	9	10
1. I know who to turn to if I have questions about college											
2. Other students around me know more about college than I do											
3. People on campus are helpful when I ask them questions											
4. It is difficult to navigate the system in college											

Reverse-code responses to statements 1 and 3

College Information Sources

If you had a question **about academics** in college, how likely are you to seek help from…

	Very Unlikely (1)	Unlikely (2)	Undecided (3)	Likely (4)	Very Likely (5)
Parents (1)	❍	❍	❍	❍	❍
Friends (2)	❍	❍	❍	❍	❍
Other relatives (3)	❍	❍	❍	❍	❍
Professors (4)	❍	❍	❍	❍	❍
Academic Advisor (5)	❍	❍	❍	❍	❍
Residence Advisor (RA) (6)	❍	❍	❍	❍	❍
Library (7)	❍	❍	❍	❍	❍
TUtoring Center (8)	❍	❍	❍	❍	❍
Coworker or supervisor (9)	❍	❍	❍	❍	❍
No one – I would look it up on my own (10)	❍	❍	❍	❍	❍
Other (specify)	❍	❍	❍	❍	❍

1 = low information source
5 = high information source

If you had a question **about college life**, how likely are you to seek help from…

	Very Unlikely (1)	Unlikely (2)	Undecided (3)	Likely (4)	Very Likely (5)
Parents (1)	❍	❍	❍	❍	❍
Friends (2)	❍	❍	❍	❍	❍
Other relatives (3)	❍	❍	❍	❍	❍
Professors (4)	❍	❍	❍	❍	❍
Academic Advisor (5)	❍	❍	❍	❍	❍
Residence Advisor (RA) (6)	❍	❍	❍	❍	❍
Library (7)	❍	❍	❍	❍	❍
Tutoring Center (8)	❍	❍	❍	❍	❍
Coworker or supervisor (9)	❍	❍	❍	❍	❍
No one – I would look it up on my own (10)	❍	❍	❍	❍	❍
Other (specify)	❍	❍	❍	❍	❍

- 1 = low information source
- 5 = high information source