Frequency of First-Year Student Interactions With Advisors

Kevin Fosnacht, Indiana University Bloomington
Alexander C. McCormick, Indiana University Bloomington
Jennifer N. Nailos, Indiana University Bloomington
Amy K. Ribera, Indiana University Bloomington

Although acknowledged that academic advising helps students adjust to and deal with the challenges of college, little is known about students' frequency of interactions with advisors. Using data from 52,546 full-time, first-year students at 209 diverse institutions, we examined the frequency with which students met with academic advisors and the way these interactions vary by student and institutional characteristics. We found that the typical first-year student met with an advisor 1 to 3 times during his or her first college year; however, the number of meetings varied across student subpopulations and institutional types.

[doi:10.12930/NACADA-15-048]

KEY WORDS: academic advising, first-year students, institutional differences, student engagement

The most complex in the world, the American education system comprises colleges and universities diversified by type, degree offerings (Lucas, 1994), and social and economic backgrounds of students (McCormick, 2011). As a result of the expanded postsecondary sector, the campus environment can pose significant social, physical, and bureaucratic obstacles for incoming students (St. John, Hu, & Fisher, 2011). Students often require guidance from others to navigate the campus, reach academic goals, and pursue educational or career ambitions. White and Schulenberg (2012) argued that academic advisors hold a strategic position for facilitating the connection between students' academic choices and the larger purpose of their educational goals. Advisors often guide students through a host of important educational decisions, including those related to course selection, degree planning, personal development, and careers (Council for the Advancement of Standards in Higher Education [CAS], 2014; Ender, Winston, & Miller, 1982).

Despite the importance of academic advising on college campuses and the growing body of literature showing positive effects of advising on retention and satisfaction (e.g., Christian & Sprinkle, 2013; Kuh, 2008), little is known about the frequency with which students take advantage of this valuable resource and the way the institutional setting determines the timing of student interactions with advisors. We explored these questions by examining the relationship between first-year students' demographic and academic characteristics and the number of times they met with advisors within the first year. We sought to determine whether these patterns vary by institutional characteristics. We use the findings to inform the wider discussion of academic advising and college student support.

Literature Review

Academic advising evolved as a formal job category in the late 20th century as the result of the massification of higher education and the shift of faculty responsibilities from holistic student development toward a more exclusive focus on teaching and research (Hemwall, 2008; Self, 2008). Helping students navigate requirements and opportunities, academic advisors serve an important role in undergraduate education (NACADA: The Global Community for Academic Advising [NACADA], 2014). In the 1980s, academic advising was recognized as a distinct role on campus, and CAS established specific responsibilities and guidelines for advisors (Cook, 2009). Responsibilities include assisting students with orientation, course selection, degree planning, personal development, career decisions, and resource access, among others (Ender et al., 1982; Gordon, 1992). Academic advisors may be the "only individual the students are obligated to visit three or four times each academic year" (Ender et al., 1982, p. 6).

Students benefit from advisors who can share knowledge, resources, and support across the campus (Self, 2008). Studies of academic advising have found that organizational models vary across institutions (Habley, 1988; Lynch & Stucky, 2000). In a critical study conducted during the early period of modern advising, Habley (1988) found

differences in advising caseloads by institutional type, with advisors at public institutions handling nearly twice as many advisees as those in private colleges.

Because of the relationship between advising and student success, students are encouraged to meet with their advisors frequently (e.g., Barbuto, Story, Fritz, & Schinstock, 2011; Winston, Miller, Ender, & Grites, 1984). The exact ways in which academic advising influences student persistence remain unclear despite the research that shows both direct and indirect effects of advising on student persistence decisions (Kot, 2014; Metzner, 1989; Pascarella & Terenzini, 2005; Swecker, Fifolt, & Searby, 2013). Academic advising has also been associated with students' satisfaction, career aspirations, perceptions of a supportive environment, and campus navigation (Cuseo, n.d.; Drake, 2011; Habley, 1981; National Survey of Student Engagement [NSSE], 2014; Smith & Allen, 2014; Swecker et al., 2013; Trombley & Holmes, 1981; Winston et al., 1984). Institutional policies can improve outcomes because some practices, such as proactive or intrusive advising, encourage student contact with advisors (Schwebel, Walburn, Jacobsen, Jerrolds, & Klyce, 2008; Schwebel, Walburn, Klyce, & Jerrolds, 2012). Despite institutional efforts, students' perceptions of advising roles and satisfaction with the advising experience vary (Christian & Sprinkle, 2013; Kuh, 2008). Students desire accurate information, guidance, and support from their advisors (Allen & Smith, 2008), and the changing composition of the student body challenges practitioners to tailor advising to meet student needs and interests (Cook, 2009; Kennedy & Ishler, 2008).

Conceptual Framework

We were guided by Terenzini and Reason's (2005) model of college influences on student learning and persistence, an extension of Astin's (1993) inputs-environment-outcomes (I-E-O) model that incorporates recent research on the impact of college environments on student outcomes. Terenzini and Reason's framework retains the input and outcome portions of Astin's model. However, it more explicitly identifies the ways college environments influence student outcomes by categorizing the college experience into two portions: the organizational context and peer environment. The organizational context includes policies and practices of institutions and specific academic programs, cocurricular activities, and faculty culture. Specifically Terenzini and Reason's model situates individual student experiences, including in-class, out-of-class, and cocurricular experiences, within the peer environment. In addition, it reveals the ways these environmental factors influence each other.

Formal advising interactions, the focus of this study, compose part of an institution's organization context. Advising is presumed to have value because it helps students persist, informs students of and facilitates access to valuable educational opportunities, such as internships, that promote student learning and development, and helps students make informed decisions while in college. However, students vary in their need for advising (Conley, 2008; Kirst & Bracco, 2004; McDonough, 1997). For example, students with a college-educated parent may benefit from parental advice about navigating the undergraduate experience that first-generation students may not receive (St. John et al., 2011). In addition, some institutions dedicate significant advising resources to specific student populations; for example, special advisors may help ensure that football team members continue to meet NCAA (National Collegiate Athletic Association) academic eligibility requirements (James & Martin, 2012). In another case, to retain a diverse student body, advisors with special training or lighter caseloads may be partnered with historically underrepresented students (Lancaster, Smith, & Boyer, 2011). These examples demonstrate the influence of student characteristics prior to college entry, institutional practices, separately and in combination, on the frequency of student interactions with advisors. The peer environment may also affect the student-advisor relationship. The institutional culture may promote students advising one another, which might reduce the need for students to interact with a faculty or primary-role advisor. In other situations, students with positive formal advising experiences may encourage their peers to meet with an advisor.

Study Purpose

Despite the acknowledged importance of academic advising, the literature on advising shows little on the question of the frequency with which students meet with advisors and the way student and institution characteristics contribute to this number. The literature that addressed these questions dates from the 1980s and does not represent the diverse college student body of today (Habley, 1988) nor does it explain the effect of online advising on organizational delivery of advising.

Table 1. Sample characteristics compared to U.S. bachelor's degree–granting student population (%)

Characteristic	Sample	United States
Gender		
Female	53	55
Male	47	45
Race/ethnicity		
Asian/Pacific Islander	4	6
Black	9	12
Hispanic/Latino	10	13
White	66	57
International	5	4
Other race	5	8
Control		
Public	76	65
Private	24	35
Carnegie classification (aggregated)		
Doctoral	48	48
Master's	42	38
Bachelor's	10	15

Note. U.S. data from the Integrated Postsecondary Education Data System (n.d.) Fall 2012 sample (authors' calculations). Sample was weighted by sex and institution size. U.S. column includes degree-seeking, undergraduate, first-time students enrolled at institutions with a Basic 2010 Carnegie Classification (The Carnegie Foundation for Higher Education, n.d.) in one of the eight primary bachelor's degree–granting classifications. Race/ethnicity categories reflect federal reporting requirements. Percentages may not sum to 100 due to rounding.

To add to and update the empirical literature on advising, we exploited data recently collected from a large multi-institutional survey of undergraduates. We focused on first-year students, who need advising as part of their transition to college. This study represents part of a larger effort to investigate the way advising shapes college experiences and outcomes for current undergraduates.

Methods

Data

We utilized data from the 2013 administration of the National Survey of Student Engagement (NSSE). NSSE is a comprehensive multi-institutional survey examining bachelor's-degree-seeking undergraduates' participation in educationally beneficial activities. Because we focused on academic advising during the first year of college, we limited our data set to first-year respondents at institutions that administered the NSSE, including the optional academic advising module. We excluded students attending special-focus institutions, such as seminaries and art schools, and part-time students, because we lacked data on part-time students' credit loads. After accounting for these exclusions, our final data set contained information on 52,546 full-time, first-year students who attended 209 U.S. bachelor's degree–granting institutions.

Table 1 shows the characteristics of the sample and the national population of degree-seeking, first-time undergraduates in the fall of 2012 (NSSE was administered the following spring). Slightly more than one half of the respondents were female, which roughly paralleled the national population. Two of 3 students were White, and Asian/Pacific Islander, African American, Hispanic/Latino, and international students comprised 4, 9, 10, and 5% of the sample, respectively, and the other students were American Indian or Alaska Native, multiracial, or of other (unspecified) racial and ethnic backgrounds. White students were overrepresented in our sample. Approximately 3 of 4 students in the sample attended public institutions, which is a higher ratio than the national population. In addition, according to NSSE, students attending institutions that grant master's degrees were overrepresented in our sample.

The outcome measure of our study was based on the number of times students reported meeting with an academic advisor during the school year "to discuss [their] academic interests, course selections, or academic performance." Response options included exact enumerations from 0 to 5, plus a final option of "6 or more" (coded as 6). Student-level covariates included a number of student and academic characteristics. We also used data on the following institutional characteristics: Basic 2010 Carnegie Classification (The Carnegie Foundation for Higher Education, n.d.), selectivity, control, undergraduate enrollment, and expenditures per each full-time equivalent (FTE) student for student services. These variable choices were informed by Terenzini and Reason's (2005) modified I-E-O model to represent students' characteristics upon college entry, the organizational environment of the institution, and individual experiences.

We used multiple imputation by chained equations (MICE) to impute missing data. Allison (2001) pointed to multiple imputation as the preferred way to handle missing data, and MICE outperforms other imputation methods (van Buuren, 2007; Yu, Burton, & Rivero-Arias, 2007). Because the outcome measure appeared near the end of a comprehensive survey, and approximately 20% of the respondents did not address our dependent variable, we found imputed data important to our study. We used 20 imputations to minimize the loss of statistical power (Graham, Olchowski, & Gilreath, 2007) but keep the computation time reasonable. Continuous variables were imputed using predictive mean matching, while binary, ordinal, multinomial, and count variables were imputed using the appropriate form of logistic or Poisson regression.

Analyses

We first examined the mean and distribution of advisor meeting frequency during the first year. Because the dependent variable was a count, we checked the assumptions of the Poisson regression model to assess whether the Poisson or another count model would be more appropriate (Gardner, Mulvey, & Shaw, 1995). Next, we investigated the bivariate relationships between the number of advisor meetings and a variety of student and institutional characteristics by regressing the number of meetings on each characteristic separately. Finally, we estimated a series of regression models that controlled for various combinations of student and institutional characteristics. The first model only featured student characteristics. The second model also included all institutional characteristics except for institutional control, and for the final model, we added institutional control. The order of the models highlights the relationships between institutional control, student service expenditures, and advising interactions. We converted regression coefficients into incident rate ratios (IRR), which are analogous to odds ratios in logistic regression and represent the expected multiplicative change in the predicted number of advising meetings associated with a unit increase in the independent variable. That is, an IRR of .90 corresponds to a 10% reduction in the number of meetings, while an IRR of 1.10 corresponds to a 10% increase.

We weighted all analyses by gender and institution size to correct for nonresponse bias. We used robust standard errors to account for the clustered nature of the data and further adjusted them to account for the uncertainty of the imputation (Rubin, 1987). In addition, using z tests, we compared the coefficients from the final model to an unimputed model with the same covariates, and only one estimate (Barron's selectivity rating of highly competitive) was found to significantly differ ($p < .05$). Because only 1 of the 52 coefficient estimates was significantly different and this variable was not imputed, we concluded that any difference between the imputed and unimputed model was most likely due to chance.

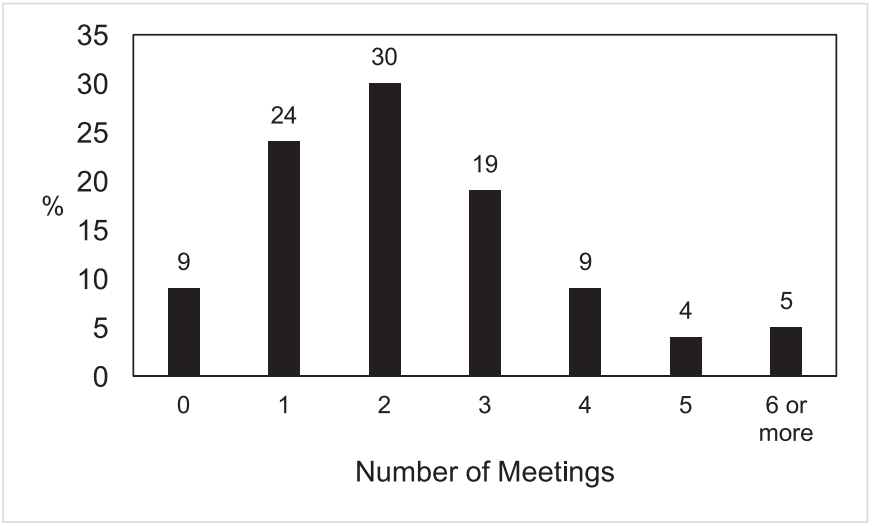
Limitations

While the data were relatively unique for enabling the investigation of advising practices at a large and diverse group of institutions, the sampled institutions had administered NSSE and the academic advising module, indicating that the administrators at these institutions took affirmative steps to assess advising practices. Therefore, the sampled colleges may not be representative of all bachelor's degree–granting institutions.

Also the data on the frequency of advising interactions were self-reported by students and subject to recall bias. The NSSE was administered during the spring, and we sent reminder e-mails to nonrespondents and those who had partially completed the survey encouraging them to finish the survey. Therefore, respondents completed the survey at different time points, and their input may not capture advising meetings appointed at the end of the first academic year, when advisors often address course planning for the fall term. In addition, the wording of questions may not allow respondents to explain fully the advising interactions via phone, e-mail, or web-based systems.

Although we used the best possible methodological practices to handle missing cases and compared the results to an unimputed model, the missing information on number of advising meetings might correlate with survey nonresponse, placing the results in question. As the survey was administered to students, no information about the organization of advising at the institutions was included, so we could not examine the way advising delivery might influence meeting frequency. Finally, although we focused on the frequency of advising interactions, we did not investigate the quality or duration of those encounters. For example, an hour-long

Figure 1. Distribution of full-time, first-year students by number of meetings with an academic advisor



meeting between an advisor and student could be more substantive and impactful than four 15-minute meetings.

Results

On average, full-time, first-year students met with an advisor twice during the school year. According to our findings, 3 of 4 students met from 1 to 3 times with advisors (Figure 1). Approximately 1 in 10 students never met with an advisor.

We next determined the count model most appropriate for the data. In checking the data against the assumptions of the general Poisson linear model, we observed that the outcome did not feature excessive zeros and that, with a mean and variance of 2.29 and 2.27, respectively, the counts were not overdispersed. We decided to use a general linear model with a Poisson distribution for the analyses. A goodness-of-fit test for the final model also indicated that this distribution was appropriate for analyzing the data.

Table 2 presents the bivariate and multivariate findings. The first column displays bivariate associations for the student and institutional characteristics examined. Student-athletes met with an advisor approximately 15% more often than nonathletes. In a similar dichotomy, on-campus students met with an advisor approximately 9% more frequently than students living off campus. Black and international students met advisors more often than White students. Compared to students in the social sciences, arts and humanities as well as biological sciences majors met with advisors more often, and business majors did so less often than social science majors. Students with a parent who had earned a doctoral or professional degree (e.g., PhD, MD, JD) met with advisors more frequently than their peers whose parents' highest earned degree was at the baccalaureate level. Students expecting to earn only a bachelor's degree met with advisors less often than students who expected to complete a graduate degree or not complete their degree program to graduation. Students who primarily received Bs met with advisors slightly less often than those who had primarily earned As. The amount of time spent studying was positively correlated with frequency of advisor meetings. Students 23 years or older met less often with advisors than those younger than 20 years. In an interesting finding, no significant bivariate relationship was found between prior preparation (as measured by SAT score) and the frequency of advisor meetings.

Our study revealed several institutional characteristics associated with the number of advising meetings. Students attending baccalaureate colleges met with an advisor more often than students at doctoral institutions. Advising meetings were held more frequently at the nation's most selective institutions (highly or most competitive). We found the largest bivariate relationship between

baccalaureate arts and sciences colleges, for which data showed a 25% greater number of student-advising meetings, and doctoral institutions (Table 2). On average, students attending institutions with fewer than 5,000 undergraduates met with advisors more often than their peers at larger institutions. Student services spending per FTE student was positively related to frequency of advising meetings, with a 6% greater number of advising meetings for every $1,000 spent per FTE student. In addition, students at private institutions met with advisors about 19% more often than their peers at public institutions.

Table 2 displays results for the three regression models. Model 1 featured only parameters for student characteristics; Model 2 featured student characteristics and included institutional characteristics other than control; and Model 3 featured the same information as Models 1 and 2 as well as the institutional control variable. Model 3, which included all parameters, showed that when other factors were held constant, many of the bivariate relationships associated with student characteristics remained intact, but the magnitude of the relationships changed. For example, Model 3 revealed that, with the other characteristics held constant, student-athletes and on-campus residents met 8 and 5% more often with an advisor, respectively. When factors other than race were held constant, the data suggested that Asian, Black, and international students met with advisors more frequently than White students. Students majoring in the arts and humanities, biological sciences, and education, as well as undecided students, met more often with advisors than did social science majors according to findings when the other student and institutional characteristics were held constant. Students with a parent who holds a doctoral or professional degree met with an advisor 3% more frequently than students with a parent holding a bachelor's degree. Students who expected to terminate their college experience with a bachelor's degree were the least likely to meet with an advisor, and students who did not expect to earn a bachelor's and who intended to pursue an advanced degree met more frequently with an advisor according to the data when the other characteristics were held constant. The frequency of interactions with an advisor also varied with students' grades: Students earning Bs reportedly met with advisors less frequently than students earning As or Cs (or lower) grades. The amount of time spent studying was positively correlated with the frequency of advisor meetings. The model demonstrated that, when all other factors were held constant, students 23 years or older met less often with an advisor than students less than 20 years old. In addition, when other factors were controlled, SAT score showed a modest negative relationship with the number of advisor interactions: A 100-point increase in score was associated with an estimated 2% reduction in the number of advisor-advisee meetings.

In contrast with the findings for student characteristics, nearly all significant bivariate relationships with institutional characteristics did not persist in the multivariate models. According to Model 2, in which all institutional characteristics were included, other than control, only a positive relationship with service spending per FTE student was found. Each $1,000 dollar increase in spending was associated with a 3% increase in the number of advising meetings. However, when the institutional control variable (public vs. private) was included, in Model 3, this relationship proved nonsignificant. According to Model 3, students attending private institutions met advisors approximately 13% more often than their peers at public institutions (when all other characteristics were held constant).

Discussion

The diversity and complexity of the U.S. higher education system necessitates that students receive advice from informed persons before and after matriculating into college. Students must navigate an environment that contains substantially different requirements, both between and within institutions, that can change over time. In a complex and unfamiliar environment, advice from peers or family members offers insufficient or incorrect information. Academic advisors help connect students to campus resources that can enrich their educational experiences or assist them in overcoming problems. In addition, advisors can help students understand the connections between their educational activities and their long-term goals.

Because of these important functions, academic advising has been linked to student satisfaction, persistence, and other desirable outcomes (e.g., Barbuto et al., 2011; Winston et al., 1984). Although interactions with advisors are recognized as beneficial to undergraduates, little research has been conducted about the frequency of these interactions and the way the number of contacts may relate to student and institutional characteristics. Using data from over 50,000 first-year students attending 209 institutions, we examined the number of time students met with an advisor

Table 2. Poisson regression estimates of the number of meetings with an advisor ($N = 52{,}546$)

Characteristic	Bivariate IRR	Model 1 IRR	Model 2 IRR	Model 3 IRR
Male	.99	1.00	1.00	1.00
Student athlete	1.15***	1.14***	1.09***	1.08***
On campus	1.09***	1.08***	1.06***	1.05***
All courses online	.91	1.01	.95	.92
Race/ethnicity (Reference = White)				
Native American	1.00	1.01	1.00	1.01
Asian/Pacific Islander	1.05	1.06*	1.06*	1.05*
Black	1.10***	1.09***	1.08***	1.08***
Hispanic/Latino	1.02	1.02	1.03	1.03
International	1.11***	1.12***	1.10***	1.09***
Multiracial	1.00	.99	.99	.99
Other	1.05	1.06	1.05	1.04
Major field (Reference = social sciences)				
Arts & humanities	1.05*	1.07***	1.08***	1.07***
Biological sciences	1.05**	1.03	1.03	1.03*
Physical sciences	1.00	1.01	1.02	1.02
Business	.96*	.98	.99	.99
Communications	.97	1.01	1.02	1.01
Education	1.02	1.04*	1.06**	1.06**
Engineering	.97	.99	1.00	1.01
Health professions	.98	.98	1.00	1.00
Social service professions	.96	.99	1.00	1.01
Other major	.97	1.02	1.02	1.02
Undecided	1.01	1.05*	1.05*	1.06*
Parental Education (Reference = bachelor's)				
Less than high school	1.03	1.04	1.04	1.04
High school	1.00	1.01	1.01	1.01
Associate's/Some college	.98	.99	.99	.99
Master's	1.02	1.00	1.00	1.00
Doctoral/professional	1.07***	1.05**	1.03*	1.03*
Educational Expectations (Reference = bachelor's)				
Some college	1.06*	1.06*	1.05*	1.05*
Master's	1.07***	1.06***	1.06***	1.06***
Doctoral/professional	1.13***	1.10***	1.10***	1.09***
Grades (Reference = mostly As)				
Mostly Bs	.98*	.99	.98*	.98*
Mostly Cs or lower	1.02	1.04*	1.03	1.03*
Study time (Reference = 10–20 hours/week)				
Less than 10 hours/week	.92***	.92***	.93***	.93***
More than 20 hours/week	1.06***	1.06***	1.05***	1.05***
Age (Reference = under 20 years)				
20–23	.97	.98	.98	.98
Over 23	.90*	.93*	.93*	.92*
SAT score (100s)	1.00	.99*	.98***	.98***
2010 Basic Carnegie Classification (Reference = doctorate granting)[a]				
Master's granting	1.01	—	1.00	1.01
Baccalaureate—Arts & Sciences	1.25***	—	1.06	1.08
Baccalaureate—Diverse fields	1.10*	—	1.06	1.05

Table 2. Poisson regression estimates of the number of meetings with an advisor ($N = 52{,}546$) (cont.)

Characteristic	Bivariate IRR	Model 1 IRR	Model 2 IRR	Model 3 IRR
Barron's selectivity (Reference = competitive)[b]				
Other	.93	—	.89	.89
Noncompetitive	.92	—	.98	.97
Less competitive	.98	—	.98	.99
Very competitive	1.06	—	1.07	1.05
Highly/most competitive	1.12***	—	1.08	1.07
Undergraduate enrollment (Reference = 1–4,999)				
5,000–9,999	.87***	—	.95	.99
10,000–14,999	.88***	—	.96	1.00
15,000–24,999	.86***	—	.96	1.02
25,000–46,000	.88***	—	.95	1.01
Student service exp./FTE ($1,000s)	1.06***	—	1.03**	1.01
Private	1.19***	—	—	1.13**
Constant	—	2.27***	2.45***	2.42***

Note. IRR = incidence rate ratio. Standard errors adjusted to account for the clustered nature of the data set. Bivariate associations for categorical variables included all other contrasts in the same category. Race/ethnicity categories reflect federal reporting requirements. All results weighted by sex and institution size.

[a]The Carnegie Foundation for Higher Education (n.d.)

[b]Barron's Educational Series (2012)

*$p < .05$. **$p < .01$. ***$p < .001$.

and the correlates of these interactions. We found that the typical full-time, first-year student met with an advisor 1 to 3 times per school year, and nearly 10% never met with an advisor.

A number of student background and academic characteristics were related to the frequency of advisor meetings, but after controlling for student characteristics, we found almost no differences in the frequency of advising interactions by institutional characteristics. The exception was institutional control: When student and other institutional characteristics were held constant, we found that students who attended private institutions reported an average of 13% more interactions with an advisor than their peers at public colleges and universities. Bivariate relationships between institutional Carnegie classification, size, and selectivity showed no significance in the multivariate analysis, and a positive relationship between student services expenditures and the number of advising meetings observed in Model 2 were nonsignificant in Model 3, to which private and public status characteristics were added. Private control was the only institutional characteristic shown significant in the final model, and it also showed the largest effect. In combination, these results suggest that the greater spending by private institutions on student services, over that of public colleges and universities, accounts for the primary difference in advising interactions across institution types.

A number of possible explanations may account for this finding. Students at private institutions may demand or seek out personalized services, such as advising, because they feel compelled to find success or shorten their time to degree and avoid accruing the higher costs of tuition. Perhaps students at private institutions assess their advising experiences more positively and thus seek them more often.

Private institutions may differ from their public counterparts in the types of student services financed, and these differences may increase the frequency with which students consult with advisors. In an alternative explanation, private colleges and universities may apply higher fees to provide extensive advising services that differentiate them from their less costly public competitors. In contrast, public institutions may rely heavily on technology-based advising systems because of their large economies of scale, which reduces the need for in-person meetings. Private institutions may enforce policy on the basis of mandatory (or highly encouraged) student meetings with advisors

during the first year; for example, students at private colleges and universities may need to meet with an advisor as a condition of registration.

Because of various possible explanations for private-student access to advising, we examined whether students' ratings of the quality of their interactions with advisors varied by institutional control. Students attending private institutions rated the quality of these interactions approximately .20 standard deviation units higher than their peers at public institutions. This finding suggests that students at private institutions are more satisfied with their advisors and that quality of advising may be one way that private institutions differentiate the experience they offer from those of public colleges and universities.

Although the data do not reveal the status of advisors as faculty members or professional advisors, previous research (Habley, 1988; Lynch & Stucky, 2000; Self, 2013) suggested that students at many private institutions are advised by faculty members rather than professional advisors. If the previous research accurately reflects the situation, our findings may challenge assumptions about the professional academic-advisor model, faculty members' willingness to commit time to advising, and their ability to deliver effective advice (Selingo, 2014).

In contrast to our findings for institutional characteristics, we found that advising interactions varied by student characteristics. Student-athletes, on average, experienced 8% more interactions with an advisor than their nonathlete peers (after other factors were held constant). Specialized or proactive advising practices implemented for student-athletes may explain this finding. To ensure compliance with NCAA academic requirements, athletic advising programs encourage student-athletes' frequent interactions with advisors regardless of specific academic need. Likewise, outreach programs may explain the reason the average frequency for international students' meetings with an advisor was 9% greater than that of domestic White students (after other factors were controlled). Advisors who work with international students, particularly students in their first year, may proactively encourage students to meet with them to monitor their transition into the United States. International students must also meet the requirements of the federal Student and Exchange Visitor Information System and may need to interact with an advisor to maintain their visa status or obtain permission to change their courses or work situations. In combination, these findings comport with previous research demonstrating that proactive advising practices can promote greater student interaction with an advisor (Schwebel et al., 2008, 2012).

Two findings suggest a bimodal relationship between the frequency of advisor meetings and academic performance. Students expecting to earn a bachelor's degree reported less frequent interactions, on average, than their peers seeking an advanced degree. In another finding, when SAT scores and other characteristics were held constant, students who obtained mostly B grades had fewer advising interactions during their first college year than those who earned mostly As, while those who had mostly Cs (or lower) grades had more interactions than those with mostly As. These results suggest that students who are either struggling or achieving at a high level meet with advisors more often than the student considered in good academic standing. Although the data do not reveal the motivations for students to meet with an advisor, these populations likely had quite different reasons for meeting with advisors. Some first-year students expecting to terminate college with a bachelor's degree and who achieve mostly Bs, may comprise the so-called *murky middle*, who tend to persist through their first-year, but may drop out in their second year (or later) (Education Advisory Board, 2014).

Implications for Research

This study offers a baseline for understanding the frequency of student–advisor meetings and highlights several important avenues for future research. The data for the current study did not permit analysis on either the reasons for advising meetings or the organization of advising at the institutional level, and both types of information would help advance the understanding of the data we present. Knowing more about the purpose of advising meetings would illuminate the differences between student characteristics, especially the apparently bimodal relationship related to students' academic performance. It could also help advance understanding of the mechanism of proactive advising for helping students to overcome academic difficulty.

Evaluations of these data conducted with knowledge on an institutional organization of advising might explain differences in the advising relationships of faculty members and professional advisors with students. Furthermore, such assessment may help clarify the appropriate caseload for a faculty or professional advisor and situations

in which the benefits of technology offset the demands of face-to-face meetings. In addition, the impact of special advising programs on identified populations, such as student-athletes, may also be revealed. Perhaps most important, additional research on advising organization may explain the practices that distinguish advising at private institutions.

We did not take into account students' subjective judgments of the quality and value of the advice received from an advisor. Incorporating such information would offer important nuance to the understanding of students' choices with regard to advising. For example, some students may elect not to meet with an advisor after an unsatisfactory experience, and such a rational response might inform future practice.

Research on extreme cases may prove valuable. For example, 1 in 10 full-time, first-year students (9%) report never meeting with an advisor, and 4 in 10 (24%) did so only once. Previous analyses of NSSE data indicate that older, commuting, and part-time students were overrepresented among students who never or only once met with an advisor (NSSE, 2014). To what extent does this pattern represent scheduling constraints that limit opportunities to consult with an advisor and what choices were based on students' judgments about the relevance and value of advising for their circumstances? Did students who met infrequently with advisors realize different academic outcomes than otherwise similar students who met more often with advisors? Our results also suggest that certain students may represent a large portion of the murky middle students, who persist through their first college year, but drop out later (Education Advisory Board, 2014). Would proactive advising or other outreach initiatives increase the likelihood that murky middle students would persist and graduate?

At the other extreme, nearly 1 in 5 (20%) first-year students met at least 4 times with an advisor, including approximately 1 in 10 (9%) who had met 5 or more times with their advisors. Who are the hyper-advised and what are their reasons for the advising meetings? Is this group comprised primarily of low and high achievers?

Some research implications involve research design. Although our study involved a large and diverse institutional sample of 209 colleges and universities, these institutions self-selected by administering the NSSE including the advising module. A comparison with research designed on the basis of a nationally representative sample of institutions may yield interesting results. We examined only bachelor's degree–granting institutions, and an important extension into the role of advising at community colleges might show distinct patterns that would help advisors at both types of institutions. As a cross-sectional study, our research does not presume a causal relationship between frequency of advising meetings and student behavior and outcomes. For example, we found a positive relationship between the amount of time students devote to class preparation and the number of advising meetings, but these data do not reveal whether this relationship reflects the behavior of motivated, diligent students or the result of interactions with advisors. A longitudinal or experimental design could fruitfully inform a variety of questions related to the efficacy and impact of advising.

Implications for Practice

The findings of this study offer implications for practice. Administrators and other advising facilitators can use the results to identify student populations who may be less inclined or able to take full advantage of academic advising and tailor programs to meet their needs. For example, the bimodal pattern, whereby students who neither struggle nor excel, interact less often with advisors, raises questions about whether the needs of the murky middle are being adequately met.

Our study suggests that the assertion by Ender et al. (1982) that first-year students "are obligated to visit [an advisor] three or four times each academic year" (p. 6) no longer reflects realities at most institutions. If periodic advising meetings are important to student success, then these results suggest the need for more systematic tracking of advising relationships. This important information coincides with the changing nature of advising in that many students meet with advisors through both in-person and online interactions. In addition, the tendency of older and commuter students to meet less often with advisors (see NSSE, 2014) suggests the need to examine the extent that advising arrangements meet the needs of these populations.

Conclusion

Academic advising plays an important role in student success by facilitating students' transition to college and ensuring that they are well acquainted with course offerings, degree

requirements, support services, and special opportunities. As colleges and universities face mounting pressures to increase completion rates and shorten the time to degree, improving the reach and effectiveness of advising systems proves important in leveraging persistence. Despite the importance of the analyses, empirical investigations into advising have not kept up with the need for information. Through this study, we offer an update to the knowledge base on students' use of academic advising and expose a number of avenues for further investigation.

References

Allen, J. M., & Smith, C. L. (2008). Faculty and student perspectives on advising: Implications for student dissatisfaction. *Journal of College Student Development, 49*(6), 609–624.

Allison, P. D. (2001). *Missing data*. Thousand Oaks, CA: Sage.

Astin, A. W. (1993). *What matters in college? Four critical years revisited*. San Francisco, CA: Jossey-Bass.

Barbuto J. E., Jr., Story, J. S., Fritz, S. M., & Schinstock, J. L. (2011). Full range advising: Transforming the advisor-advisee experience. *Journal of College Student Development, 52*(6), 656–670.

Barron's Educational Series. (2012). *Profiles of American colleges—2013*. Hauppauge, NY: Barron's Educational Series.

The Carnegie Foundation for the Advancement of Teaching. (n.d.). *The Carnegie classification of institutions of higher education*. Retrieved from http://carnegieclassifications.iu.edu/

Christian, T. Y., & Sprinkle, J. E. (2013). College student perceptions and ideals of advising: An exploratory analysis. *College Student Journal, 47*(2), 271–291.

Conley, D. T. (2008). *College knowledge: What it really takes for students to succeed and what we can do to get them ready.* San Francisco, CA: Jossey-Bass.

Cook, S. (2009). Important events in the development of academic advising in the United States. *NACADA Journal, 29*(2), 18–40.

Council for the Advancement of Standards in Higher Education. (2014). *Academic advising programs*. Retrieved from http://standards.cas.edu/getpdf.cfm?PDF=E864D2C4-D655-8F74-2E647CDECD29B7D0

Cuseo, J. (n.d.). *Academic advisement and student retention: Empirical connections & systemic interventions*. Retrieved from http://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Retention-and-attrition-resources.aspx

Drake, J. K. (2011). The role of academic advising in student retention and persistence. *About Campus, 16*(3), 8–12.

Education Advisory Board. (2014). *The murky middle project: Preliminary findings, Fall 2014*. Washington, DC: Author.

Ender, S. C., Winston, R. B., Jr., & Miller, T. K. (1982). Academic advising as student development. In R. Winston, S. Ender, & T. Miller (Eds.), *New Directions for Student Services: Developmental Approaches to Academic Advising*, *No. 17* (pp. 3–18). San Francisco, CA: Jossey-Bass.

Gardner, W., Mulvey, E. P., & Shaw, E. C. (1995). Regression analyses of counts and rates: Poisson, overdispersed Poisson, and negative binomial models. *Psychological Bulletin, 118*(3), 392–404. doi:10.1037/0033-2909.118.3.392

Gordon, V. N. (1992). *Handbook of academic advising*. Westport, CT: Greenwood.

Graham, J. W., Olchowski, A. E., & Gilreath, T. D. (2007). How many imputations are really needed? Some practical clarifications of multiple imputation theory. *Prevention Science, 8*(3), 206–213.

Habley, W. R. (1981). Academic advisement: The critical link in student retention. *NASPA Journal, 18*(4), 45–50.

Habley, W. R. (1988). *The status and future of academic advising: Problems and promise*. The ACT National Center for the Advancement of Educational Practice. Retrieved from ERIC database. (ED346903)

Hemwall, M. K. (2008). Advising delivery: Faculty advising. In V. N. Gordon, W. R. Habley, & T. J. Grites (Eds.), *Academic advising: A comprehensive handbook* (2nd ed., pp. 253–266). San Francisco, CA: Jossey-Bass.

Integrated Postsecondary Education Data System. (n.d.). *Integrated Postsecondary Education Data System–Fall Enrollment,* 2012 [Data set]. Retrieved from https://nces.ed.gov/ipeds/datacenter/DataFiles.aspx

James, S., & Martin, H. (2012). 15 tips on the basics of advising student athletes. *Academic Advising Today, 35*(2). Retrieved from https://www.nacada.ksu.edu/Resources/Academic-Advising-Today/View-Articles/15-Tips-on-the-Basics-of-Advising-Student-Athletes.aspx

Kennedy, K., & Ishler, J. C. (2008). The changing college student. In V. N. Gordon, W. R. Habley, & T. J. Grites (Eds.), *Academic advising: A comprehensive handbook* (2nd ed., pp. 123–141). San Francisco, CA: Jossey-Bass.

Kirst, M. W., & Bracco, K. R. (Eds.). (2004). *From high school to college*. San Francisco, CA: Jossey-Bass.

Kot, F. C. (2014). The impact of centralized advising on first-year academic performance and second-year enrollment behavior. *Research in Higher Education*, *55*, 527–563.

Kuh, G. D. (2008). Advising for student success. In V. N. Gordon, W. R. Habley, & T. J. Grites (Eds.), *Academic advising: A comprehensive handbook* (2nd ed., pp. 68–84). San Francisco, CA: Jossey-Bass.

Lancaster, C., Smith, C., & Boyer, K. (2011). Tying recruitment to retention: An advisor's role in working with underrepresented populations. *Academic Advising Today, 34*(2). Retrieved from http://www.nacada.ksu.edu/Resources/Academic-Advising-Today/View-Articles/Tying-Recruitment-to-Retention-An-Advisors-Role-in-Working-with-Underrepresented-Populations.aspx

Lowenstein, M. (2005). If advising is teaching, what do advisors teach? *NACADA Journal, 25*(2), 65–73.

Lucas, C. J. (1994). *American higher education: A history* (2nd ed.). New York, NY: Palgrave Macmillan.

Lynch, M. L., & Stucky, K. (2000). Advising at the millennium: Advisor roles and responsibilities. *NACADA Journal, 21*(1), 15–31.

McCormick, A. C. (2011). It's about time: What to make of reported declines in how much college students study. *Liberal Education, 97*(1), 30–39.

McDonough, P. M. (1997). *Choosing colleges: How social class and schools structure opportunity*. New York: University of New York Press.

Metzner, B. S. (1989). Perceived quality of academic advising: The effect on freshmen attrition. *American Educational Research Journal*, *26*, 422–442.

NACADA: The Global Community for Academic Advising. (2014). *About us*. Retrieved from http://www.nacada.ksu.edu/About-Us/Vision-and-Mission.aspx

National Survey of Student Engagement. (2014). *Bringing the institution into focus—Annual results 2014*. Bloomington: Indiana University Center for Postsecondary Research.

Pascarella, E. T. (1985). College environmental influences on learning and cognitive development: A critical review and synthesis. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 1). New York, NY: Agathon.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research* (Vol. 2). San Francisco, CA: John Wiley & Sons.

Rubin, D. B. (1987). *Multiple imputation for nonresponse in surveys*. New York, NY: Wiley.

Schwebel, D. C., Walburn, N. C., Jacobsen, S. H., Jerrolds, K. L., & Klyce, K. (2008). Efficacy of intrusively advising first-year students via frequent reminders for advising appointments. *NACADA Journal*, 28(2), 28–32,

Schwebel, D. C., Walburn, N. C., Klyce, K., & Jerrolds, K. L. (2012). Efficacy of advising outreach on student retention, academic progress and achievement, and frequency of advising contacts: A longitudinal randomized trial. *NACADA Journal*, *32*(2), 36–43.

Self, C. (2008). Advising delivery: Professional advisors, counselors, and other staff. In V. N. Gordon, W. R. Habley, & T. J. Grites (Eds.), *Academic advising: A comprehensive handbook* (2nd ed., pp. 267–278). San Francisco, CA: Wiley.

Self, C. (2013). *Implications of advising personnel of undergraduates 2011 National Survey.* In A. H. Carlstrom & M. A. Miller (Eds.), *2011 NACADA National Survey.* Retrieved from http://www.nacada.ksu.edu/Resources/Clearinghouse/View-Articles/Implications-of-advising-personnel-of-undergraduates-2011-National-Survey.aspx

Selingo, J. J. (2014, April 11). Who advises best, pros or profs? *New York Times*. Retrieved from http://www.nytimes.com/2014/04/13/education/edlife/who-advises-best-pros-or-profs.html

Smith, C. L., & Allen, J. M. (2014). Does contact with advisors predict judgments and attitudes consistent with student success? A multi-institutional study. *NACADA Journal*, *34*(1), 50–63.

St. John, E. P., Hu, S., & Fisher, A. (2011). *Breaking through the access barrier: How academic capital formation can improve policy in higher education*. New York, NY: Taylor & Francis.

Swecker, H., Fifolt, M., & Searby, L. (2013). Academic advising and first-generation college students: A quantitative study on student retention. *NACADA Journal*, *33*(1), 46–53.

Terenzini, P. T., and Reason, R. D. (2005, November). *Parsing the first year of college: A conceptual framework for studying college impact*. Paper presented at the annual meeting of the Association for the Study of Higher Education, Philadelphia, PA.

Trombley, T. B., & Holmes, D. (1981). Defining the role of academic advising in the industrial setting: The next phase. *NACADA Journal, 1*(2), 1–8.

van Buuren, S. (2007). Multiple imputation of discrete and continuous data by fully conditional specification. *Statistical Methods in Medical Research, 16*(3), 219–242.

White, E., & Schulenberg, J. (2012). Academic advising: A focus on learning. *About Campus,16*, 11–17.

Winston, R. B., Jr., Miller, T. K., Ender, S. C., & Grites, T. J. (Eds.). (1984). *Developmental academic advising*. San Francisco, CA: Jossey-Bass.

Yu, L. M., Burton, A., & Rivero-Arias, O. (2007). Evaluation of software for multiple imputation of semi-continuous data. *Statistical Methods in Medical Research*, *16*(3), 243–258.

Authors' Notes

Kevin Fosnacht, is an associate research scientist at the Indiana University Center for Postsecondary Research and has been a member of the team that administers the National Survey of Student Engagement since 2011. He holds a bachelor's degree from the University of Michigan, Ann Arbor, and master's of arts and doctorate of philosophy degrees in Education from the University of California, Los Angeles. Dr. Fosnacht's research focuses on the college student experience broadly and has examined topics ranging from information literacy to financial stress to democratic engagement. Dr. Fosnacht can be reached at kfosnach@indiana.edu.

Alexander C. McCormick is an associate professor of Educational Leadership and Policy Studies at Indiana University Bloomington. He also directs the National Survey of Student Engagement (NSSE). Since the NSSE launch in 2000, more than 1,600 bachelor's degree–granting colleges and universities in the United States and Canada have used NSSE to assess the extent to which undergraduates engage in and are exposed to effective educational practices. Through this work, he aims to enrich the discourse about quality in higher education while enabling institutions to diagnose and improve undergraduate teaching and learning. His research interests center around assessment, accountability, and evidence-informed improvement.

Jennifer N. Nailos holds bachelor's degrees from the University of Massachusetts–Amherst, a master of arts in Higher Education and Student Affairs from The Ohio State University, and doctorate of education in Higher Education from Indiana University. Her research and practice focuses on student affairs and higher education policy.

Amy Ribera is an assistant research scientist with the Center for Postsecondary Research at Indiana University Bloomington. Dr. Ribera is a former academic advisor at Indiana University–Purdue University Indianapolis. Her research interests include the first-year experience, first-generation students, academic advising, faculty teaching practices, and academic engagement.

This paper was presented at the annual meeting of the American Education Research Association, Chicago, IL, April 2015.